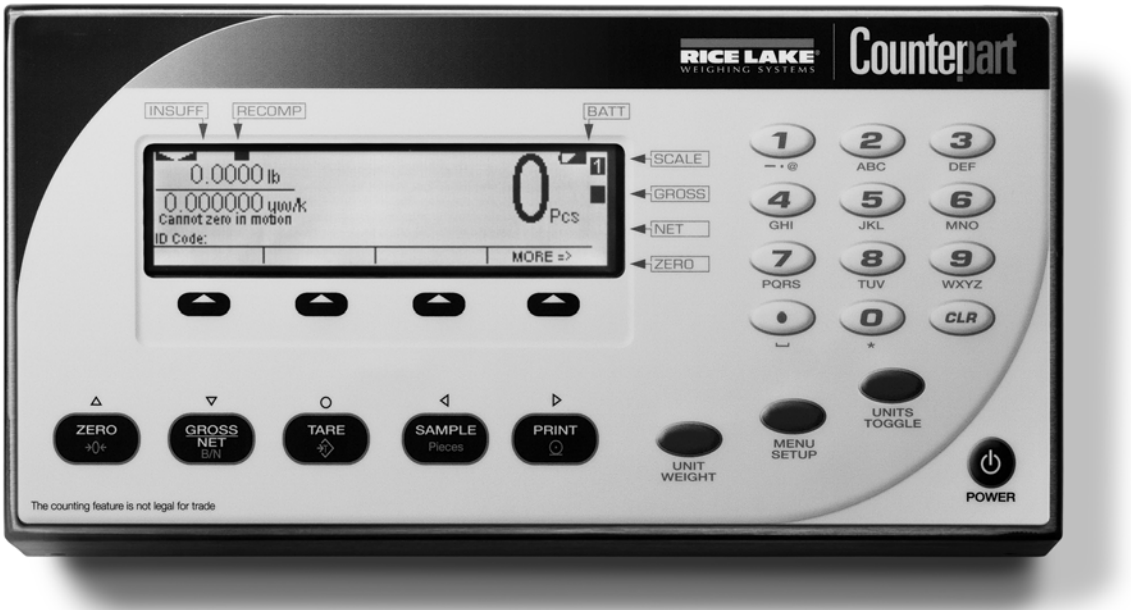
Counterpart®

Counting Scale Indicator
Version 1.0

User Manual



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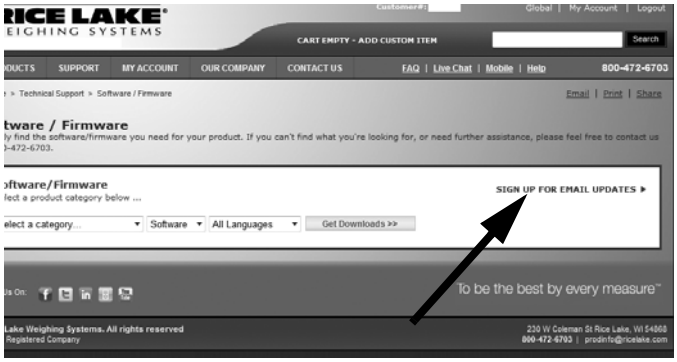
About This Manual

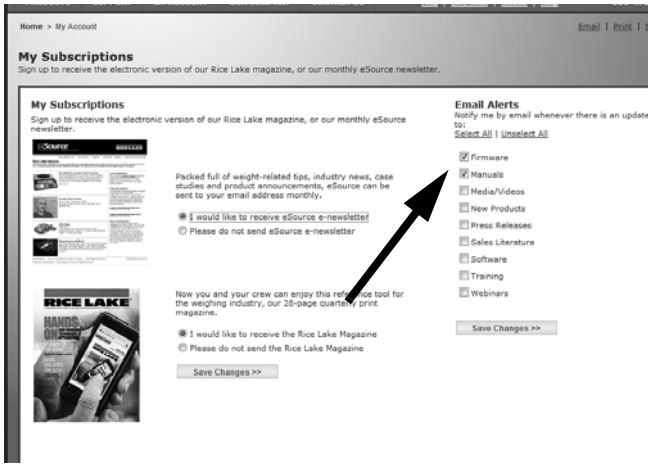
This manual is provided for the use of trained and qualified installers of counting scales, and represents the correct, safe and recommended methods for setting up and using the *Counterpart*®.

This manual can be viewed and downloaded from the Rice Lake Weighing Systems web site at www.ricelake.com. Rice Lake Weighing Systems is an ISO 9001 registered company.

Note

Some features of Counterpart included in this manual will be available soon. Those sections and features are noted. Once available, those features will be available via download from the Rice Lake Weighing Systems web site. To stay up-to-date with the latest downloads available, sign up for Email Updates on the Rice Lake Weighing Systems web site at http://www.ricelake.com/software.aspx.

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1. For registered users, simply click on the Support tab on the RLWS homepage and select software/ firmware.
2. Select *SIGN UP FOR EMAIL UPDATES* as shown on the left side graphic above.
3. Select the number of boxes you wish to receive email alerts on and press *SAVE CHANGES*.

1.0 Introduction

The *Counterpart* offers practical solutions for a full range of precision counting applications. A bright LCD display enables operators to easily view quantities and alphanumeric text messaging displays part numbers to verify descriptions and correct part called from memory. One hundred and fifty (150) item memory and two RS-232 ports and Ethernet enable the *Counterpart* to provide real-time data collection and position it for the future growth of your business. Multiple scales can be connected to the *Counterpart*, as well as an RS-232 bar code scanner and external printer. When portability is required, choose the battery operation option of the *Counterpart* up to 24 hours of continuous use for mobile workstations, outdoor applications, and rental fleets. It's built to withstand transport from one area of the plant to another or from one business to the next. Simply connect a printer via RS-232 for labeling, ticketing, or receipt tasks.

1.1 Standard Features

Counterpart offers a variety of standard features and are listed below.

- AC operated (battery operation is optional)
- Lb/kg, g/oz weight display conversion
- Single or dual channel models w/ serial scale
- Two RS-232 ports for peripheral connections (with one port also supporting 20 mA transmit)
- On board Ethernet capability
- Scanner input (using RS-232 port)
- Revolution software utility for setup
- 150 item memory

1.2 Capacities and Resolutions

Table 1-1 list the scale capacities and resolutions for all part numbered models of the *Counterpart.*

Counting scales specify two types of resolution:

- Weight (or external) resolution
- Counting (or internal) resolution

Weight resolution is displayed in divisions of the full scale capacity, which is divided into weight increments. For example, a 5-lb scale divided into 10,000 display divisions would display weight with 0.0005 lb divisions (10,000 divisions x 0.0005 lb = 5.0 lb).

Counting resolution is based on the internal resolution of the scale. The default weight and counting resolutions for the *Counterpart* capacities are shown below.

Platform Capacity	Weighing Resolution	Counting Resolution	Platform Dimensions
5.0 lb	0.005 lb	0.000005	9 in x 12 in
10 lb	0.001 lb	0.00001	11 in x 16 in
25 lb	0.002 lb	0.00002	
50 lb	0.005 lb	0.00005	
100 lb	0.01 lb	0.0001	

Table 1-1. Counterpart Capacities

1.3 Modes of Operation

1.3.1 Description of Modes of Operation

- Count Mode – where all the basic weighing and counting operations are performed.
- Setup Mode – where item data can be programmed into the memory of the scale.

1.4 Keypad Functions

Key	Function
POWER	Turns the *Counterpart* unit on/off. **NOTE:** If the PC1 jumper is set to SW, the **POWER** button must be used to turn the unit on and off. If the PC jumper is set to ON, the unit will automatically power on when it's plugged in and the only way to turn it off is to unplug power.
MENU SETUP	Enters Menu mode, allowing configuration if the Audit jumper is in the "ON" position. Also used as an "escape" key in Menu mode.
	Sets the current gross weight to zero, provided the amount of weight to be removed or added is within the specified zero range and the scale is not in motion. The zero band is defaulted to 1.9% of full scale, but can be configured for up to 100% of full scale. **NOTE:** 1.9% is required for legal for trade applications.
UNIT WEIGHT	Used to enter a known unit weight of a part.
	Sends "on-demand" serial information out the serial port, provided the conditions for standstill are met.
	Performs one of several predetermined Tare functions dependent on the mode of operation selected in the TAREFN parameter. To view a stored tare, see Section 1.5. Also acts as the **ENTER** key
	Allows the display to change between gross mode and net mode.
	This is used for computing the unit weight by sampling. Press the **SAMPLE** key after placing a sample on the platform, or after using the numeric keypad to enter the sample size. The default sample size is 10.
UNITS TOGGLE	This switches the weight display to an alternate unit. the alternate unit is defined in the Setup Menu and could be kg, g, lb, oz.
	Clear key. Used to backspace on entries
Alpha-Numeric keypad (see Figure 1-1)	Used to enter values directly. Press keys for small and upper case alpha characters.

Table 1-2. Keypad Functions

Figure 1-1. Numeric Keypad

1.5 Tare Recall

When a stored tare is displayed, Net annunciators will be turned on. To display a stored tare,

1. Set up a soft key (see Softkey Setup below).
2. Press the *DISPLAY TARE* softkey.
   The tare value will be displayed. If there is no tare in the system, pressing the **TARE** key will have no effect. The Gross/Net annunciators are not lit and a value is displayed in weight display area.

1.6 Annunciator Symbols

Annunciator	Description
	→0← **Zero (Center of Zero)** While in gross weight display mode, this LED indicates that the current displayed weight reading is within +/-0.25 display divisions of the acquired zero, or is within the center of zero band. When in the net weight display mode, it indicates that the current net weight reading is within +/-0.25 display divisions of the center of net zero. A display division is the resolution of the displayed weight value, or the smallest incremental increase or decrease that can be displayed or printed.
	G/B Gross weight mode (or Brutto in OIML mode)
	N Net weight display mode.

Table 1-3. Annunciator Symbols

1.7 Softkey Setup

Softkeys offer additional ways to access features associated with the *Counterpart*. To access the softkey setup parameter, go to *Menu -> Setup -> Config -> Feature -> Softkeys*.

Select information for each softkey and press **TARE (Enter)** key after each entry and then press **SaveExit** softkey. To exit back out of the unit, press the **MENU SETUP** key twice without saving changes.

Note

Softkeys set for either Display Tare or Display Accum will automatically time out and revert to the normal active display after 10 seconds.

1.8 How to use Alpha/Numeric Keypad

Counterpart has the ability to use alpha characters along with numeric characters. Use the following steps to change to alpha characters:

1. Select a key labeled with the value desired.
2. Push until the desired value appears, ie: 2 abcABC).
3. Move to the next letter and push until that value appears.
4. If the next letter is the same key, push the right arrow (PRINT) to move over to the next selection.
5. When complete, push **TARE(Enter)** to save.

1.9 Indicator Operations

Basic *Counterpart* operations are summarized below.

Toggle Gross/Net

Press the **GROSS/NET** key to switch the display mode from gross to net or from net to gross. If a tare value has been entered or acquired, the net value is the gross weight minus the tare. If no tare has been entered or acquired, the display remains in gross mode.

Gross mode and Net mode is indicated by the annunicator on the display.

Toggle Units

Press the **UNITS TOGGLE** key to switch between primary, secondary, and tertiary units.

Zero Scale

1. While in gross mode, remove all weight from the scale and wait for the standstill annunicator (◺◿).
2. Press the **ZERO** key. The zero annunicator is displayed to indicate the scale is zeroed.

Acquire Tare

1. Place a container on the scale and wait for the standstill annunicator (◺◿).
2. Press the **TARE** key to acquire the tare weight of the container.
3. The *Net* annunicator will be enabled.

Remove Stored Tare Value

1. Remove all weight from the scale and wait for the standstill annunicator (◺◿).
2. Press the **TARE** key. The display shifts to gross weight and the Gross annuciator is displayed.

Keyed Tare

1. Key in the value of the container.
2. Press the **TARE** key.
3. The *Net* annunciator is displayed.

Print

Press the **PRINT** key to print either the Gross, Net, Total or Count format.

The default format is a 2.25 x 4.5 inch label.

1. Wait for standstill annunciator (◺◿).
2. Press the **PRINT** key to send data to the serial port.

If the standstill annunciator is not present, the **PRINT** key command is executed if the scale comes out of motion within three seconds.

Set Date and Time

1. If the softkey is enabled, push the softkey. The current value is displayed.
2. To change, use the Up/Down arrows to highlight the value to change.
3. Press the **TARE** key to save and exit.

Set Serial Scale (Scale 3)

1. Select Port 1 - Indust Scale
2. Match the baud rates. Upon doing this it automatically becomes Scale 3.

2.0 Installation

Counterpart is available in different configurations from just the indicator display to the display and counting scale combined together as a unit. This section contains instructions on unpacking and assembly, leveling, making power connections, load cell wiring, wiring standard serial port, optional network communications, wiring optional digital outputs, optional backup battery operation, and power-up sequence. Assembly drawings and replacement parts lists are also included.

Caution *Do not pick up the counting scale by the "spider" assembly, which supports the platter. Lifting by the spider may damage the load cell. Lift the scale from under the base to move it.*

2.1 Unpacking

The *Counterpart* comes with the following components (if purchasing scale and indicator):

- AC adapter
- Weighing platform
- This manual
- Indicator head
- Bracket kit

Note *Store the packing material and box in a safe, easily accessible place. Should you ever need to transport the scale across any substantial distance, using the original packing material is the first step in protecting your investment.*

1. Immediately after unpacking the scale, visually inspect the *Counterpart* to ensure all components are included and undamaged. If any parts were damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

Caution *Do not turn the scale upside down. Always work with the scale on its side. Damage to the load cell can occur if the scale is turned upside down.*

2. Set up the scale on a stable, level surface.

2.2 Leveling

Select a location for the *Counterpart* that is reasonably level and free of vibrations and air currents. Adjust the four corner feet on the scale base and refer to the bubble level on the inside frame. The base should not rock and the feet should have solid contact with the surface.

Note *Ensure the nut on each foot's bolt is secured flush against the scale base.*

2.3 Enclosure Disassembly

The *Counterpart* indicator enclosure must be opened to connect cables for load cells, communications, and digital inputs/outputs.

Warning *Before opening the unit, ensure the unit is turned off and the power cord is disconnected from the power outlet. The power outlet must be located near the indicator to allow the operator to easily disconnect power to the unit.*

Ensure power to the indicator is disconnected, then place the indicator on an antistatic mat. Remove the four screws holding the top plate to the enclosure body and set them aside. Gently lift the top plate away from the enclosure and disconnect any cables and set it aside.

2.4 Making Power Connections

The power source used for the *Counterpart* must be properly grounded to an acceptable earth ground and the outlet must be a grounded outlet. If the scale is remotely mounted, the platform must be separately grounded from the chassis ground screw located on the bottom of the platform. Connect this screw with 18 gauge wire to the same earth ground system as the AC power source. Failure to ground the base may cause static buildup that could cause damage to the electronics and/or give incorrect weight readings.

2.5 Load Cell Wiring

On all complete units, the load cell has been wired to the CPU load cell terminal at the factory. Wire the cable to the CPU board's J1and J2 connector as shown in Table 2-1.

Note *If using a 4-wire connection, set JP1 and JP2 to ON. If using a 6-wire connection, set JP1 and JP2 to OFF.*

J1 & J2	Function
1	+ Signal
2	- Signal
3	+ Sense
4	- Sense
5	+ Excitation
6	- Excitation

Table 2-1. J1 and J2 Pin Assignments

2.6 Wire Specifics

Wires connecting to J1, J2, J3, or J4 should adhere to the following specifications:

Wire Range	Wire Strip Length
28~12 AWG stranded or solid wire	5~6 mm (3/16" ~ 1/4")

Table 2-2. Wire Specifications for Connectors

2.7 Cable Grounding

Except for the power cord, all cables should be grounded against the scale enclosure. Do the following to ground shielded cables.

- Use the lockwashers, clamps, and kep nuts provided in the parts kit to install grounding clamps on the enclosure studs. Install grounding clamps that will be used; do not tighten nuts.
- Route cables and grounding clamps to determine cable lengths required to reach cable connectors. Mark cables to remove insulation and shield as described below:
- For cables with foil shielding, strip insulation and foil from the cable half an inch (15 mm) past the grounding clamp (see Figure 2-1). Fold the foil shield back on the cable where the cable passes through the clamp. Ensure silver (conductive) side of foil is turned outward for contact with the grounding clamp.
- For cables with braided shielding, strip cable insulation and braided shield from a point just past the grounding clamp. Strip another half inch (15 mm) of insulation *only* to expose the braid where the cable passes through the clamp (see Figure 2-1 8).
- Finish installation using cable mounts and ties to secure cables inside of indicator enclosure.

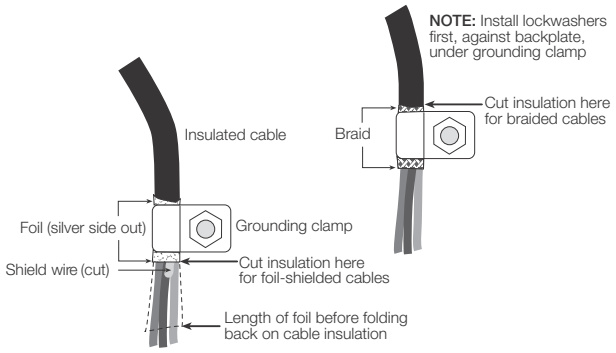
NOTE: Install lockwashers first, against backplate, under grounding clamp
Cut insulation here for braided cables
Insulated cable
Braid
Foil (silver side out)
Grounding clamp
Shield wire (cut)
Cut insulation here for foil-shielded cables
Length of foil before folding back on cable insulation

Figure 2-1. Grounding Clamp Attachment for Foil-Shielded and Braided Cabling

2.7.1 Serial Communications

Wire the serial communications cables to J4, which is Port 2 (5-wire RS-232 port). J5 is Port 1 (RS-232 and 20 mA). Connect communications cables to J5 and J4 as shown in Table 2-3.

Use cable ties to secure serial cables to the inside of the enclosure.

Port 1 supports full duplex RS-232 communications only; Port 2 provides either active 20 mA output or duplex RS-232 transmission. Both ports are configured using the SERIAL menu. See Section 3.6.5 on page 31.

Connector	Pin	Signal	Port
J4	1	20 mA	2
	2	Ground or -20 mA	
	3	Tx	
	4	Rx	
	5	CTS	
	6	RTS	
J5	1	Ground	1
	2	Ground	
	3	Tx	
	4	Rx	
	5	DTR	
	6	RTS	

Table 2-3. J4 and J5 Pin Assignments

2.7.2 Digital I/O - COMING SOON

The Digital I/O can be configured as either digital inputs or digital outputs as determined by the DIO menu (see Section 3.6.5 on page 31). The inputs are active (on) with low voltage (0 VDC) and can be driven by TTL or 5V logic without additional hardware. Use the DIG I/O menu (see Section 3.6.5 on page 31) to configure the digital inputs. LEDs on the CPU board light when digital inputs are active (see Figure 2-2).

Digital outputs are typically used to control relays that drive other equipment. Outputs are designed to sink not source, switching current. Each output is a CMOS circuit, capable of sinking 24 mA when active. Digital outputs are wired to switch relays when the digital output is active (low, 0 VDC) with reference to 5 VDC supply. LEDs on the CPU board light up when the digital outputs are active (see Figure 2-2).

Connector	Pin	Signal
J3	1	+5V
	2	Ground
	3	DIG I/O 1
	4	DIG I/0 2
	5	DIG I/O 3
	6	DIG I/O 4

Table 2-4. J3 Pin Assignments (Digital I/O)

2.7.3 Network Connection to Counterpart

Counterpart has an onboard Ethernet connection. It's wireless connectivity is made possible with the optional Lantronix WiPort wireless networking device (PN 108671). Refer to the WLAN installation instructions (PN 108680) included with the option card for installing and configuration instructions.

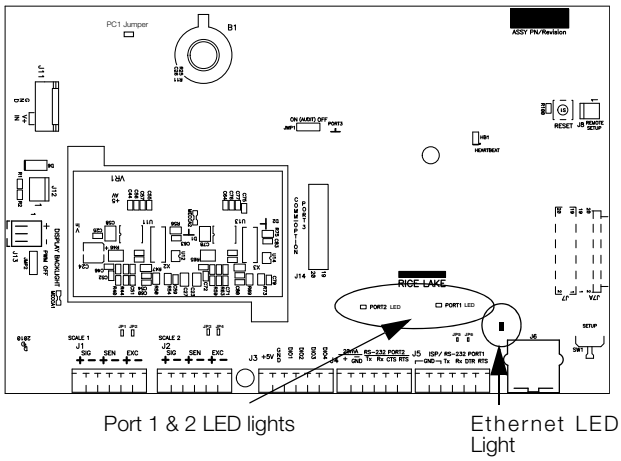

Figure 2-2. LED Light Locations

2.8 Enclosure Reassembly

Once the cabling is complete, position the top plate over the enclosure and reinstall the four screws.

2.9 CPU Board Removal

If you must remove the *Counterpart* CPU board, use the following procedure:

1. Disconnect power to the scale.
2. Disconnect power supply cable from connector J12 on the *Counterpart* CPU board.
3. Disconnect the wires at the following connectors: J1, J2, J3, J4 and J5 and J13 if equipped.
4. Remove the six screws connecting the CPU board, then lift the board out of the enclosure.

To replace the CPU board, reverse the above procedure. Be sure to reinstall cable ties to secure all cables inside the indicator enclosure.

2.10 Battery Replacement

Caution *Risk of explosion if battery is replaced with incorrect type. Dispose of batteries per manufacturer instructions.*

The lithium battery on the CPU board maintains the real-time clock and protects data stored in the system RAM when the indicator is not connected to AC power. Data protected by this battery includes time and date, IDs, and configuration information. If any data is lost, the indicator configuration can be restored from the PC. Watch for the low battery warning on the LCD display and periodically check the battery voltage on the CPU board. Batteries should be replaced when the indicator low battery warning comes on, or when battery voltage falls to 2.2 VDC. Life expectancy of the battery is 7 years. Use Revolution to store a copy of the configuration before attempting to replace the battery.

For best results, replace the battery while in weigh mode and with AC power applied. Use care not to bend the battery retaining spring.

2.11 Installing Option Cards

Disconnect power cord entirely before installing option cards.

Note ***Ethernet port is not suitable for connection to circuits used outside the building and is subject to lightning or power faults.***

Each option card is shipped with installation instructions specific to that card. For specific instructions on the WLAN card, refer to Section 8.0 on page 65.

The general procedure for all option cards is:

1. Disconnect power cord from the scale.
2. Install the plastic standoffs in the standoff holes.
3. Carefully align the option card connector with the J14 connector on the CPU board.
4. Press down firmly to seat the option card in the CPU board connector.
5. Make connections to the option card as required. Use cable ties to secure loose cables inside the enclosure. When installation is complete, reassemble the enclosure as described in Section 2.8.

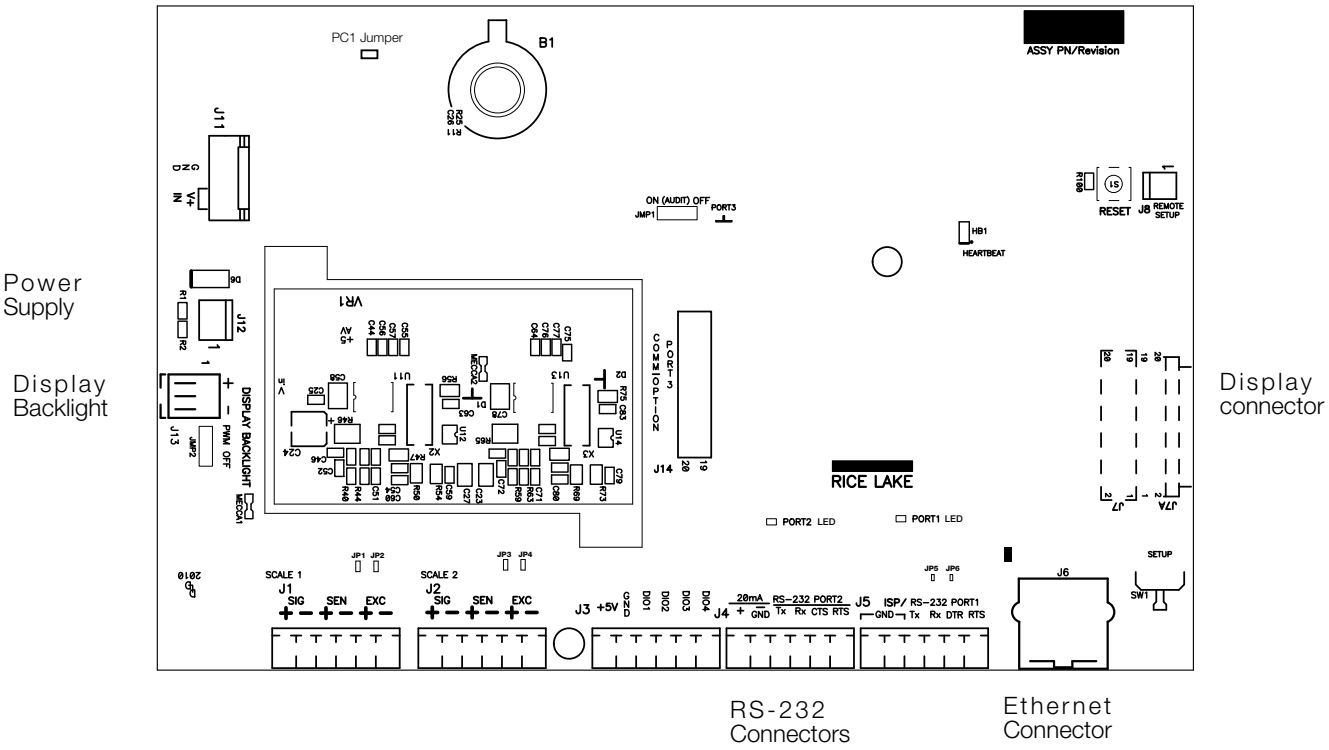

Figure 2-3. Counterpart CPU Board

Jumper	Description
JP1/JP2 JP3/JP4	Jump excitation to sense. If using a 4-wire load cell cable, leave JP1 and JP2 on. If using a 6-wire load cell cable, take JP1 and JP2 off. Default is ON.
JP5/JP6	Used when upgrading firmware. The jumpers should be on when upgrading firmware and off when the update is complete.
PC 1 JMP2	Power control. If the jumper is set to SW, the POWER key can be used to turn the unit on/off. If set to ON, the unit will power on when plugged in and can only be powered off by unplugging.
AUDIT JMP1	If set to Audit ON, calibration and configuration can be accessed through the front keypad. If set to Audit OFF, calibration and configuration can only be accessed by removing the screws from the unit and pressing the Setup switch with a screwdriver. Default is Audit ON.

Table 2-5. Jumper Descriptions

Note ***If the RESET button on the CPU board is pressed, the scale will perform a reboot.***

2.12 Indicator Replacement Parts and Assembly Drawings

Ref Number	Part Number	Description (Quantity)
1	118434	Overlay, Membrane Switch Panel (1)
2	118435	Counterpart Cover Enclosure (1)
3	120756	Seal Strip, Nylon Brush w/ Holes (1)
4		
5	119275	LCD Display Module (1)
6		
7	120484	CPU Mounting Bracket (1)
8	14621	Kep Nut, 6-32NC Hex (6)
9	120741	CPU Board (1) single AD
	117507	CPU Board (1) dual AD
10	14822	Machine Screw, 4-4 ONC x 1/4 (6)
11	118437	Enclosure Base (1)
12	19433	Rubber Foot (4)
13	60130	Ribbon Cable (1)
14	75146	Coverplate (1)
15	120266	Machine Screw, 6-32NC x 3/8 (7)
16	69291	Lithium Battery, 3V (1)
17	59274	#6 Flat Washer (1)
18	56972	Flat Cable Clamp (2)

Figure 2-4. Counterpart Indicator Replacement Parts

Figure 2-5. Counterpart Front View

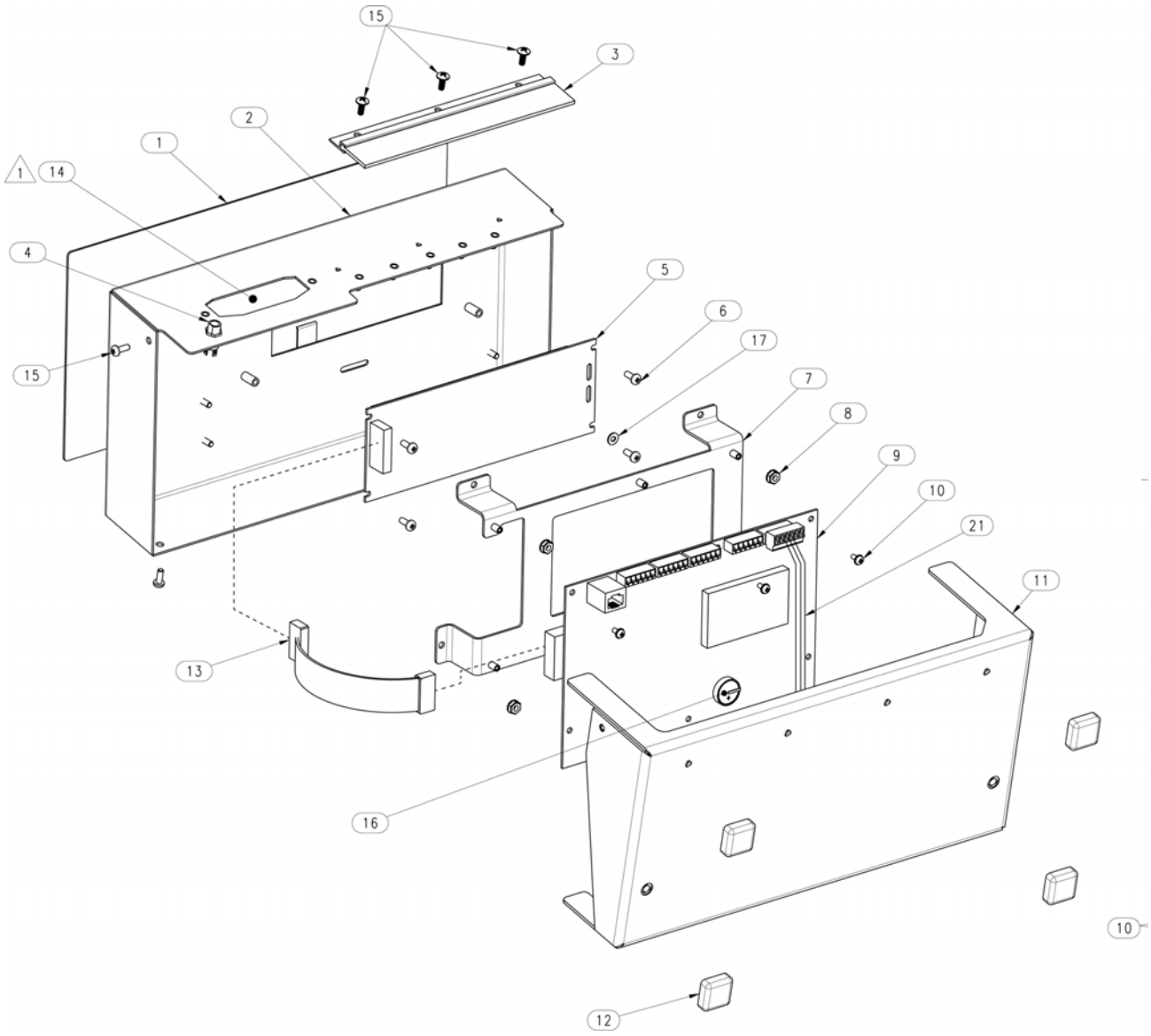

Figure 2-6. Counterpart Assembly and Components

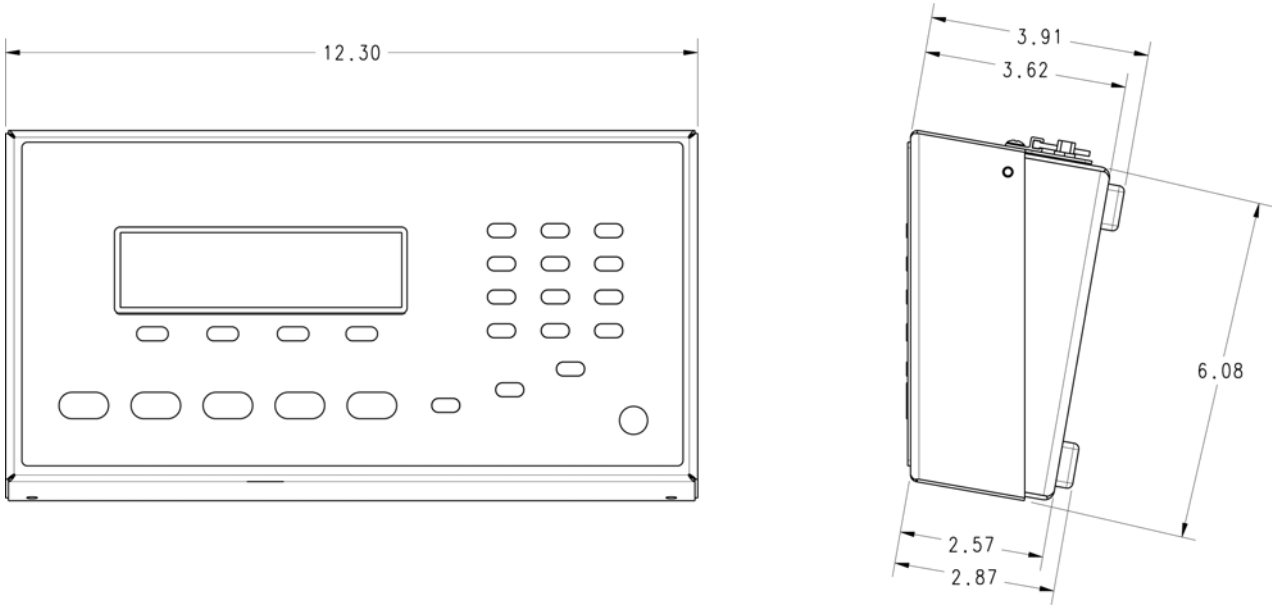

Figure 2-7. Counterpart Dimensions

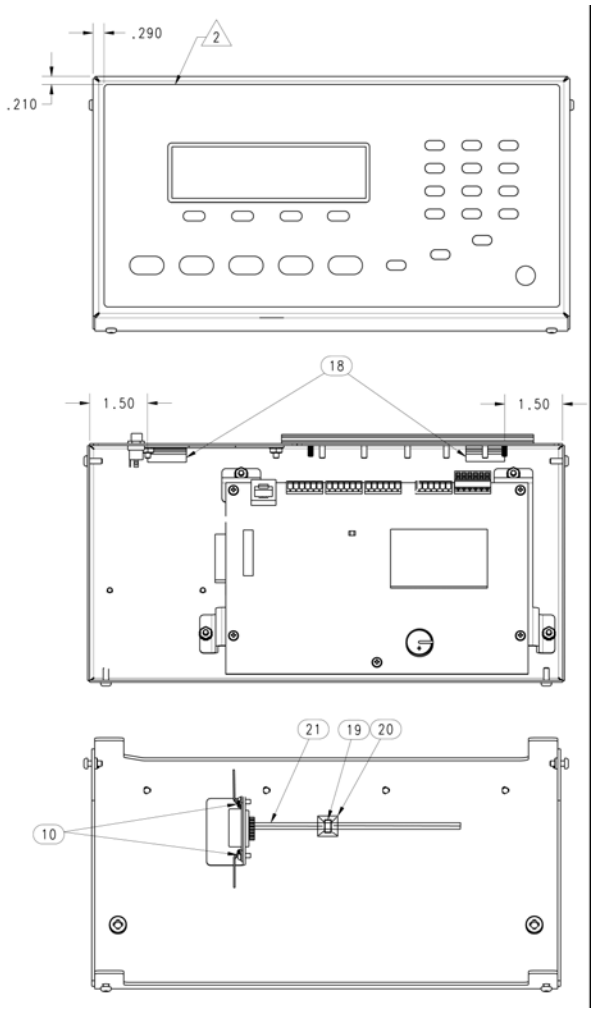

Figure 2-8. Counterpart Rear and Side Dimensions

3.0 Configuration

3.1 Front Panel Configuration

To set up and configure the *Counterpart* counting Scale, you will use the **MENU** key on the front panel. The indicator is defaulted at the factory with the audit trail jumper (JMP1) in the ON position, allowing configuration access by pressing the Menu key. Pressing the **MENU** key will take you to the *Audit* menu selection. Use the **SAMPLE** (◁) and **PRINT** (▷) navigation keys to move to other menu selections. Use the **NET/GROSS** (▽) and **ZERO** (△) navigation keys to enter and exit menu selections, respectively.

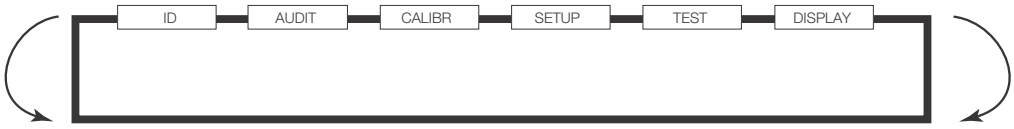

Figure 3-1. Menu Mode Navigation Structure

Menu		Function
ID	ID	Allows you to setup or edit IDs.
AUDIT	Audit Trail	Displays the legally relevant (LR) firmware version, configuration count, and calibration count.
CALIBR	Calibrate	Calibrates the scale.
SETUP	Setup	Accesses setup options for the scale, features, serial output, print format, digital inputs and outputs, and displays the version number.
TEST	Test	Performs a basic test on the A/D, digital inputs and outputs, communication ports, RAM, and keypad.
DISPLAY	Display	Accesses the setup option for contrast, image, brightness

Table 3-1. Menu Summary

3.2 Menu Navigation

Once you have entered the menus, you can use the front panel buttons to navigate. Note the looped menu structure shown in Figure 3-1. This provides a shortcut for accessing the right most menu items by navigating to the left, and vice-versa for the opposite side of the menu. This shortcut also holds true for sub-menu navigation.

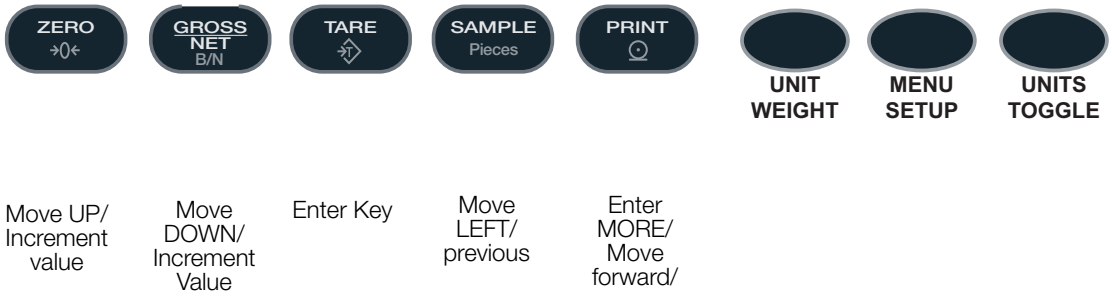

Figure 3-2. Front Panel Key Functions in Menu Mode

Various keys are used as directional keys to navigate through the menus (see Figure 3-2). The **SAMPLE** (◁) and **PRINT** (▷) keys scroll left and right (horizontally) on the same menu level; **ZERO** (△) and **GROSS/NET** (▽) move up and down (vertically) to different menu levels. Each of these keys has a directional symbol indicating its menu navigation function. The **TARE (ENTER)** key has the same function as **GROSS/NET** (▽) when navigating the menu-either will move down to access sub-categories of a main menu item. When adding or editing data using the *Counterpart*, the **ZERO** (△) and **GROSS/NET** (▽) keys will edit the blinking digit. The **SAMPLE** (◁) and **PRINT** (▷) keys navigate to another digit. The numeric keys can also be used to insert a digit to the right of the blinking digit. Press **TARE (ENTER)** to accept the data and return to the next menu item.

Note *To exit Configuration and return to weighing, press the* **MENU** *key or navigate to the* **EXIT** *menu and press* **ENTER**.

3.3 Revolution Configuration

The Revolution configuration utility provides the preferred method for configuring the *Counterpart* indicator. Revolution runs on a personal computer to set configuration parameters for the indicator. When Revolution configuration is complete, configuration data is downloaded to the indicator.

Revolution supports both uploading and downloading of indicator configuration data. This capability allows configuration data to be retrieved from one indicator, edited, then downloaded to another indicator with an identical hardware configuration.

To use Revolution, do the following:

1. Install Revolution on an IBM-compatible personal computer.
2. With both indicator and PC powered off, connect the PC serial port to the RS-232 pins on the indicator serial port or to the optional USB communications card.
3. Power up the PC and the indicator. Use the setup switch to place the indicator in setup mode.
4. Start the Revolution program.

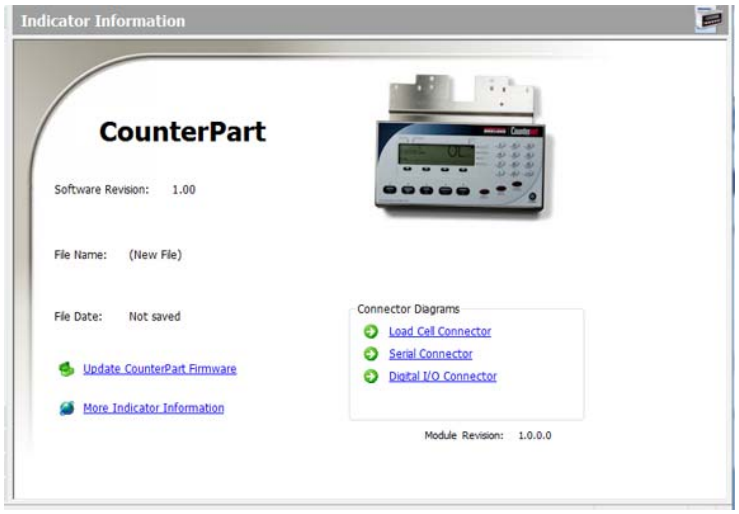

Figure 3-3. Revolution Display

Revolution provides online help for each of its configuration displays. Parameter descriptions provided in this manual for front panel configuration can also be used when configuring the indicator using Revolution: The interface is different, but the parameters set are the same.

3.4 Audit Menu

The audit menu accesses audit trail support. It provides tracking information for configuration and calibration events. To prevent potential misuse, all configuration and calibration changes are counted as change events. Audit information can be printed by pressing the **PRINT** key while displaying the audit trail items beneath the AUDIT menu.

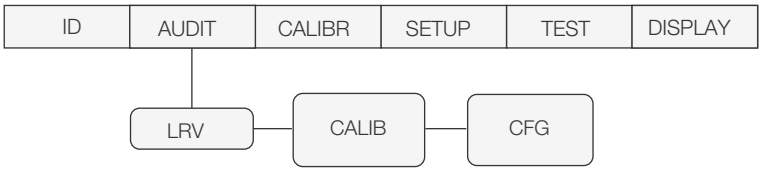

Figure 3-4. Audit Menu

AUDIT Menu	
Parameter	**Description**
LRV	Legally relevant firmware version.
CALIB	Displays total calibration events.
CFG	Displays total configuration events.

Table 3-2. Audit Menu Parameters

3.5 Menu Structures and Parameter Descriptions

The *Counterpart* scale can be configured using a series of menus accessed through the scale front panel when the scale is in setup mode. Figure 3-5 and Table 3-3 summarizes the functions of each of the top level menus.

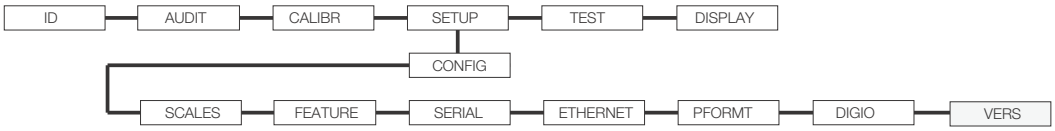

Figure 3-5. Top Level Configuration Menu

The *Counterpart* counting scale can be configured using a series of menus accessed through the display front panel when the scale is in setup mode. The top level menu structure includes the following:.

Menu		Menu Function
ID	ID	Sets up IDs of various parts
AUDIT	Audit Trail	View audit trail data
CALIBR	Calibration	Calibrate Counterpart through this menu
SETUP	Setup	Set up the configuration parameters
TEST	Test Menu	Test functionality
DISPLAY	Display	Sets up the display parameters of Counterpart

Table 3-3. Top Level Menu Structure

To access the second level parameters use the down arrow on the indicator to access the submenus which are noted in Table 3-4.

Menu		Menu Function
SCALES	Configuration	Configure and calibrate scales.
FEATURE	Feature	Set date and time formats passwords, keyboard locks, regulatory mode, and initial consecutive number value, count function, and define softkeys.
SERIAL	Serial	Configures the communications ports
ETHERNET	Ethernet	Configures the Ethernet port
PFORMT	Print Format	Set print format used for header, gross, net, count, pallet and total ticket formats. See Section 6.0 on page 51 for more information.
DIG IO	Digital IO	Assign digital input/output functions
VERS	Version	Display installed software version number. The **Reset Config** softkey on the Version menu can be used to restore all configuration parameters to their default values.

Table 3-4. Setup Menu Summary

3.6 Setup Menu

The setup menu allows you to configure settings for the scale, features, serial port settings, Ethernet, print format, and digital inputs and outputs. You can also view the software and regulatory versions, and revert to default settings.

3.6.1 SCALE Submenu

Calibration can be performed in two places within the menu: the CALIBR menu shown in Figure 3-11 is an in-depth scale setup and calibration. A “quick access” calibration is shown in Figure 4-1 on page 39.

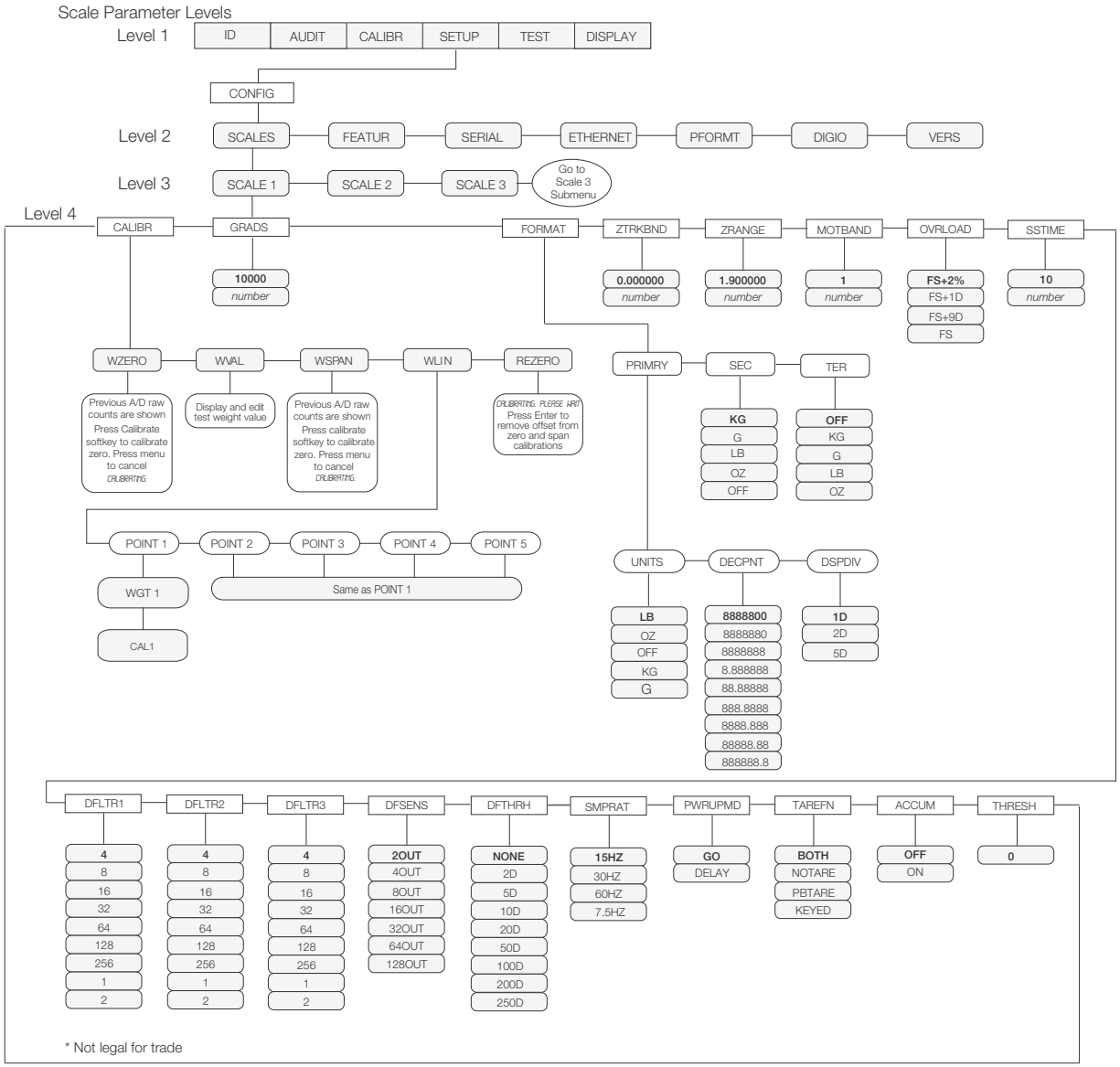

Figure 3-6. Setup Menu: Scale Submenu

SETUP Menu		
Parameter	**Choices**	**Description**
Level 3 submenu		
SCALES 1 AND 2		Allows configuration and calibration of each scale
Level 4 submenus		
GRADS	**10000** *1–100000*	Specifies the number of full scale graduations. The value entered must be in the range 1–100000 and should be consistent with legal requirements and environmental limits on system resolution. **To calculate GRADS, use the formula: GRADS = *Capacity / Display Divisions*.** Display divisions are specified under the FORMAT submenu.
FORMAT	PRIMRY SEC TER	Select your primary, secondary, and tertiary units of measure. Sub-choices include lb, kg, oz, and g.
ZTRKBND	**0.000000** *number*	Automatically zeroes the scale when within the range specified, as long as the input is within the ZRANGE and scale is at standstill. Specify the zero tracking band in ± display divisions. Maximum legal value varies depending on local regulations. **Note** *For scales using linear calibration, do not set the zero tracking band to a value greater than that specified for the first linearization point.*
ZRANGE	**1.900000** *number*	Selects the range within which the scale can be zeroed. The 1.900000 default value is ± 1.9% around the calibrated zero point, for a total range of 3.8%. Indicator must be at standstill to zero the scale. Use the default value for legal-for-trade applications.
MOTBAND	**1** *number*	Sets the level, in display divisions, at which scale motion is detected. If motion is not detected for 1 second or more, the standstill symbol lights. Some operations, including print, tare, and zero, require the scale to be at standstill. Maximum legal value varies depending on local regulations. If this parameter is set to 0 the standstill annunciator does not light; operations normally requiring standstill (zero, tare, print) are performed regardless of scale motion. If 0 is selected, ZTRKBND must also be set to 0.
OVRLOAD	**FS+2%** FS+1D FS+9D FS	Overload. Determines the point at which the display blanks and an out-of-range error message is displayed. Maximum legal value varies depending on local regulations.
SSTIME	**10** *number*	Specifies the length of time the scale must be out of motion, in 0.1-second intervals, before the scale is considered to be at standstill. Values greater than 10 are not recommended.
DFLTR 1-3	**4** 8 16 32 64 128 256 1 2	Selects the digital filtering rate used to reduce the effects of mechanical vibration from the immediate area of the scale. The overall filtering effect can be expressed by adding the values assigned to the three filter stages: DFLTR1 + DFLTR2 + DFLTR3 See Section 9.6 on page 71 for information on digital filtering. Choices indicate the number of A/D conversions per update that are averaged to obtain the displayed reading. A higher number gives a more accurate display by minimizing the effect of a few noisy readings, but slows down the settling rate of the indicator.

Table 3-5. Setup Menu Parameters

SETUP Menu		
Parameter	**Choices**	**Description**
DFSENS	**4OUT** 2OUT 8OUT 16OUT 32OUT 64OUT 128OUT	Digital filter cutout sensitivity. Specifies the number of consecutive readings that must fall outside the filter threshold (DFTHRH parameter) before digital filtering is suspended.
DFTHRH	**NONE** 2D 5D 10D 20D 50D 100D 200D 250D	Digital filter cutout threshold. Specifies the filter threshold, in display divisions. When a specified number of consecutive scale readings (DFSENS parameter) fall outside of this threshold, digital filtering is suspended. If NONE is selected, the filter is always enabled.
SMPRAT	**15 HZ** 30 Hz 60 Hz 7.5 Hz	Sample rate. Selects measurement rate, in samples per second, of the analog-to-digital converter. Lower sample rate values provide greater signal noise immunity.
PWRUPM	**GO** DELAY	Power up mode. In GO mode, the indicator goes into operation immediately after a brief power up display test. In DELAY mode, the indicator performs a power up display test, then enters a 30-second warm up period. If no motion is detected during the warm up period, the indicator becomes operational when the warm up period ends; if motion is detected, the delay timer is reset and the warm up period repeated.
TAREFN	**BOTH** NOTARE PBTARE KEYED	Enables or disables push-button and keyed tares. Possible values are: BOTH: Both push-button and keyed tares are enabled NOTARE: No tare allowed (gross mode only) PBTARE: Push-button tares enabled KEYED: Keyed tare enabled
ACCUM	**OFF** ON	Accumulator. Specifies whether the scale accumulator is enabled. If enabled, accumulation occurs whenever a print operation is performed. Scale must return to zero to re-arm a new print.
THRESH	**0**	Enter a value to be used as divisions. Zero threshold allows you to select a threshold or reset point where automatic printing functions reset themselves to be retriggered. When a value is entered, anything that would normally require the scale to reach zero before it happens/rearms (except for LFT parameters) now only needs to go below this value and then above it again.
CALIBR	WZERO WVAL WSPAN WLIN REZERO	See Level 4 submenu descriptions in Table 3-9 on page 32.

Table 3-5. Setup Menu Parameters (Continued)

SETUP Menu		
Parameter	**Choices**	**Description**
Level 5 submenus - Format		
PRIMRY	UNITS DECPNT DSPDIV	Allows you to set the primary units, decimal point format, and display divisions.
SEC	**KG** G LB OZ OFF	Allows you to set the secondary units. Decimal point format and display divisions are selected automatically. Values are kg=kilogram (default); g=gram; lb=pound; oz=ounce; and off. ***Note** If using the <cu> token and secondary or tertiary values are changed, the stream tokens must be changed to match in order to stream secondary or tertiary.*
TER	**OFF** KG G LB OZ	Allows you to set the tertiary units. Decimal point format and display divisions are selected automatically. Values are off (default); kg=kilogram; g=gram; lb=pound; oz=ounce. ***Note** If using the <cu> token and secondary or tertiary values are changed, the stream tokens must be changed to match in order to stream secondary or tertiary.*
Level 5 submenus - Calibration		
WZERO		Allows you to view or change the zero calibration a/d count value.
WVAL		Allows you to view and edit the test weight value.
WSPAN		Allows you to view or change the span calibration a/d count value.
WLIN **COMING SOON**	POINT 1 POINT 2 POINT 3 POINT 4 POINT 5	Press **ENTER** to display and edit test weight and calibration values for up to five linearization points. Perform linear calibration only after WZERO and WSPAN have been set. Parameters include CAL1 - View or change linear point calibration value. WGT1 - Sets test value.
REZERO **COMING SOON**		Removes offset from zero and span calibrations. Can be used during a span calibration process using hooks and chains.
Level 6 submenus - Primary, Secondary, Tertiary		
UNITS	**LB** OZ KG G OFF	Specifies primary units for displayed and printed weight. Values are lb=pound; oz=ounce; kg=kilogram; g=gram.
DECPNT	**8888800** 8888880 8888888 8.888888 88.88888 888.8888 8888.888 88888.88 888888.8	Allows you to place the decimal point position. Use the ID (◁) and TARGET (▷) keys to place the decimal point where desired.
DSPDIV	**1D** 2D 5D	Display divisions. Selects the minimum division size for the primary unit's displayed weight.

Table 3-5. Setup Menu Parameters (Continued)

3.6.2 SCALE 3 Submenu

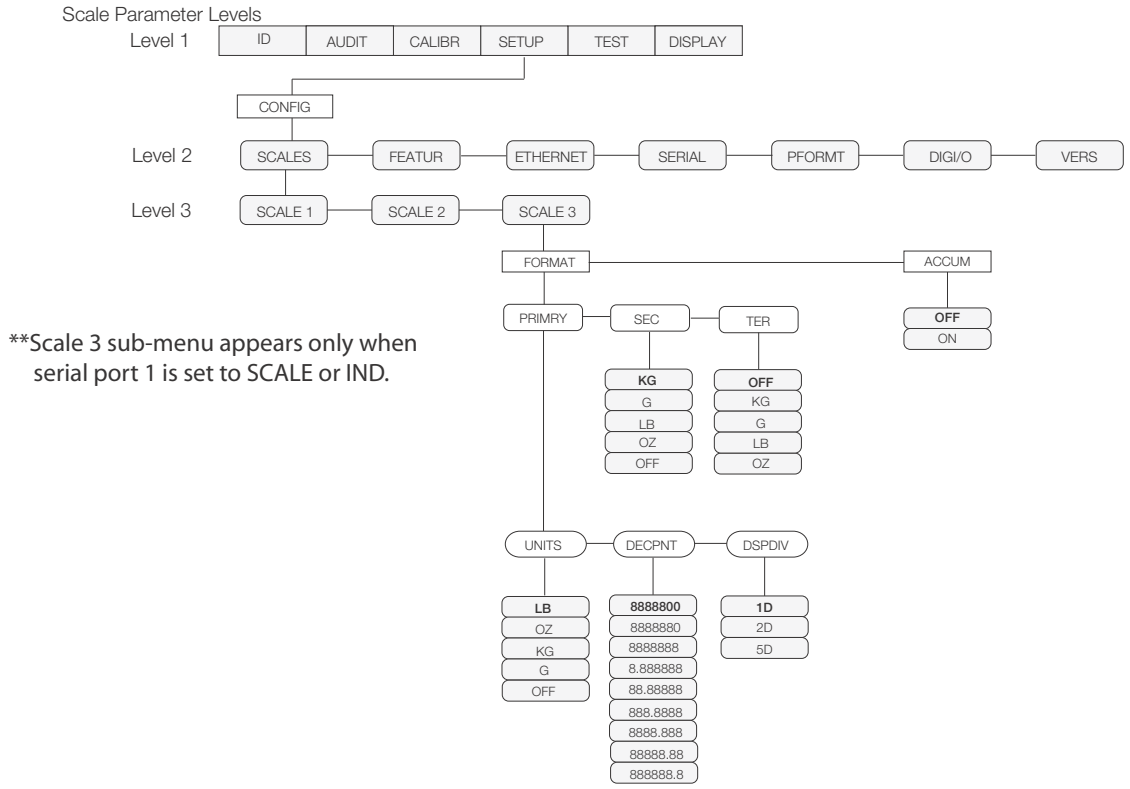

Figure 3-7. Scale 3 Serial Menu

SCALE 3 Submenu		
Parameter	**Choices**	**Description**
Format Submenu		
PRIMRY	UNITS DECPNT DSPDIV	Allows you to set the primary units, decimal point format, and display divisions.
SEC	**KG** G LB OZ OFF	Allows you to set the secondary units. Decimal point format and display divisions are selected automatically. Values are kg=kilogram (default); g=gram; lb=pound; oz=ounce; and off. ***If using the <cu> token and secondary or tertiary values are changed, the stream tokens must be changed to match in order to stream secondary or tertiary.***
TER	**OFF** KG G LB OZ	Allows you to set the tertiary units. Decimal point format and display divisions are selected automatically. Values are off (default); kg=kilogram; g=gram; lb=pound; oz=ounce. ***If using the <cu> token and secondary or tertiary values are changed, the stream tokens must be changed to match in order to stream secondary or tertiary.***
Accum Submenu		

Table 3-6. Scale Three Submenu Parameters

3.6.3 FEATUR Submenu

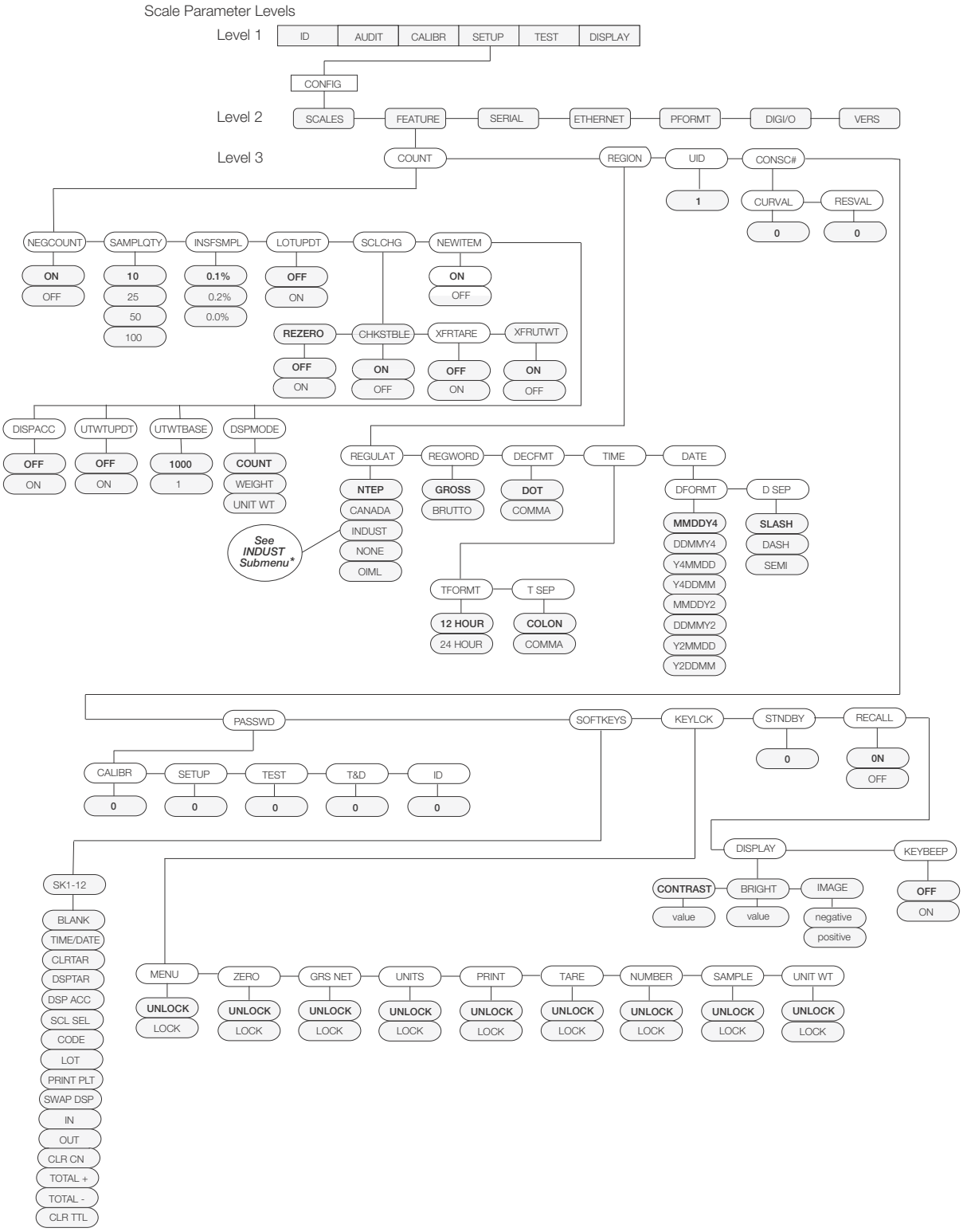

Figure 3-8. FEATUR Submenu

FEATUR Menu		
Parameter	**Choices**	**Description**
Level 3 submenus - Feature		
COUNT	NEGCOUNT SAMPLEQTY INSFSMPL LOTUPDT SCLCHG NEWITEM DISPACC UNITWTUPDATE UTWTBASE	Selects the counting mode (enables/disables negative checkweighing; turns data parameters on/off. See Level 3 submenus.
REGION	REGULA REGWRD DECFMT TIME DATE	Selects regional settings. See Level 3 submenus.
UID	**1**	Sets the unit ID, a string of up to 6 ASCII characters, which can be set via serial port or keypad. This will be used in place of the <UID> token in a print format. The default value is "1."
CONSC#	CURVAL RESVAL	Allows sequential numbering for print operations (CURVAL is the current value and RESVAL is the reset value). The consecutive number value is incremented following each print operation that includes <CN> in the ticket format. When the consecutive number is reset, it is reset to the RESVAL specified on the parameter.
PASSWD	CALIBR SETUP TEST T&D ID	Creates a password to access the CALIBR, SETUP, TEST, T&D, and ID menus. Specify a non-zero value to restrict access to all configuration menus. Passwords can be overridden by loading new firmware or entering 999999. **Note** ***Overriding passwords will clear configuration and calibration settings. To preserve settings (i.e., ID information), use Revolution software to upload your data to a PC, then download it back to the indicator after the password override is performed.***
SOFTKEYS	SK1-12	
KEYLCK	MENU ZERO GRSNET UNITS PRINT TARE NUMBER SAMPLE UNIT WT	Disables the MENU, ZERO, GRSNET, UNITS, PRINT, TARE number sample and unit weights. Select *LOCK* to disable the key, and *UNLOCK* to enable the key.
STNDBY	**0**	Standby mode delay. Specifies the number of minutes the indicator must be inactive before entering standby mode. Valid values are 0 (off) through 255 minutes. When in standby mode, power is still supplied to the CPU and draws 1/2 of the current as when the display is powered. The annunciators are still lit, but no weight is displayed. Press any key to exit standby mode and reactivate the display. The indicator enters standby mode if no key presses, serial communications, or scale motion occur for the length of time specified in this parameter. Set to 0 to disable standby mode. **Note** ***Standby mode will not be implemented if there is weight on the scale.***

Table 3-7. FEATUR Submenu Parameters

FEATUR Menu		
Parameter	**Choices**	**Description**
RECALL	**ON** OFF	ON allows the Tare, Zero, and Units values to be maintained across a power cycle. Over/Under/Target/ID values are also maintained. OFF clears the values on a power cycle. Zero is reset to calibrated zero and Units are reset to Primary. Over/Under/Target/ID values are reset as well.
DISPLAY	**CONTRAST** BRIGHT IMAGE	Adjusts Counterpart display viewing. Key in a value BRIGHT - Key in a value IMAGE - enter negative or positive
KEYBEEP	**OFF** ON	Select ON to alert the user every time a key is pressed.
Level 4 submenus - under the Level 3 Count Feature		
NEGCOUNT	**ON** OFF	Sets whether negative weighing mode is off or on.
SAMPLQTY	**10** 25 50 100	Is the default value for sample quantity.
INSFSMPLE	**0.1** 0.2 0.0	A minimum sample size is required based on the platform capacity and product weight.
LOTUPDT	**OFF** ON	Updates the lot number from the front panel softkey.1 It does not override the stored value.
SCLCHG	**REZERO** CHKSTABLE XFRTARE XFRUTWT	Scale change. These are actions taken when changing from one scale to another.
NEWITEM	**OFF** ON	New item. This prompts to add an ID to memory from the front panel.
DISPACC	**OFF** ON	Display accuracy
UTWTUPDT	**OFF** ON	Enables or disables the updating of the loaded ID with a new unit weight value. OFF - Parts can be sampled (generating a new unit weight) or a unit weight can be keyed or scanned but the new unit weight is not saved into the stored copy of the currently loaded ID record. ON - If on, the unit weight will update the stored value whether at zero or actual value.
UTWTBASE	**1000** 1	Unit weight base. 1=APW (Average Piece Weight), 1000=Piece weight per thousand.

Table 3-7. FEATUR Submenu Parameters (Continued)

FEATUR Menu		
Parameter	**Choices**	**Description**
DISPMODE	**Count** Weigh Unit Weight	Display mode. This chooses the value to be displayed as large in viewing window.
Level 4 submenus - under the Level 3 Region Feature		
REGULA	**NTEP** CANADA INDUST NONE OIML	Regulatory mode. Specifies the regulatory agency having jurisdiction over the scale site. Note The value specified for REGULA affects the function of the front panel TARE and ZERO keys. • OIML, NTEP, and CANADA modes allow a tare to be acquired at any weight greater than zero. NONE allows tares to be acquired at any weight value. • OIML, NTEP, and CANADA modes allow a tare to be cleared only if the gross weight is at no load. NONE allows tares to be cleared at any weight value. • NTEP and OIML modes allow a new tare to be acquired even if a tare is already present. In CANADA mode, the previous tare must be cleared before a new tare can be acquired. • NONE, NTEP and CANADA modes allow the scale to be zeroed in either gross or net mode as long as the current weight is within the specified ZRANGE. In OIML mode, the scale must be in gross mode before it can be zeroed; pressing the ZERO key in net mode clears the tare. • INDUST provides a set of subparameters to allow customization of tare, clear, and print functions in non-legal-for-trade scale installations.
REGWOR	**GROSS** BRUTTO	Sets the term printed when weighing in gross mode. Selecting BRUTTO replaces *Gross* with *Brutto*.
DECFMT	**DOT** COMMA	Specifies whether decimal numbers are displayed using a period (DOT) or a comma.
TIME	**TFORMT** T SEP	Allows you to set the current time, and the time format and separator character.
DATE	**DFORMT** D SEP	Allows you to set the current date, and date format and date separator character.
Level 4 submenus - under the Level 3 Consec # Feature		
CURVAL	**0**	This is the starting number.
RESVAL	**0**	This is the ending/reset value.
Level 4 submenus - under the Level 3 Password Feature		
CALIBR	**0**	Can enter a numeric password for each of the parameters listed.
SETUP		
TEST		
T & D		
ID		
Level 4 submenus - under the Level 3 Softkeys Feature		

Table 3-7. FEATUR Submenu Parameters (Continued)

FEATUR Menu		
Parameter	**Choices**	**Description**
SK1-12	BLANK TIMEDATE CLR TAR DSPTAR DSP ACC SCL SEL CODE LOT PRINT PLT SWAP DSP IN OUT CLR CN TOTAL + TOTAL - CLR TTL	Labels softkeys for access to function stated.
Level 4 submenus - under the Level 3 Keylock Feature		
MENU	**UNLOCK** LOCK	Allows the user to lock or unlock keys of the Counterpart.
ZERO	**UNLOCK** LOCK	
GRS NET	**UNLOCK** LOCK	
UNITS	**UNLOCK** LOCK	
PRINT	**UNLOCK** LOCK	
TARE	**UNLOCK** LOCK	
NUMBER	**UNLOCK** LOCK	
SAMPLE	**UNLOCK** LOCK	
UNIT WT	**UNLOCK** LOCK	
Level 5 submenus - Under the Level 4 SCLCHG Feature		
REZERO	**OFF** ON	Performs a zero function on change.
CHKSTBLE	**ON** OFF	When changing scales, a stability check can be either enabled or disabled. If enabled, and the stability check is successful, no indication is shown and the unit switches to the next scale. If enabled and the stability check fails, then NON-STABLE is shown on the display and the switch to the next scale is not made.
XFRTARE	**OFF** ON	When changing scales, the tare weight is transferred from scale 1 to scale 2. Units must be set to the same unit of measurement.
XFRUTWT	**ON** OFF	When changing scales, the unit weight is transferred from scale 1 to scale 2.
Level 5 submenus - Under the Level 4 DATE Feature		

Table 3-7. FEATUR Submenu Parameters (Continued)

FEATUR Menu		
Parameter	**Choices**	**Description**
DFORMT	**MMDDY4** DDMMY4 Y4MMDD Y4DDMM MMDDY2 DDMMY2 Y2MMDD Y2DDMM	Sets the date format. Y4 will use a four-digit year value, such as 2011, while Y2 will use a two-digit value, such as 11.
D SEP	**SLASH** DASH SEMI	Sets the date separator as a slash, dash, or semicolon.
Level 5 submenus - Under the Level 4 TIME Feature		
TFORMT	**12 HOUR** 24 HOUR	Sets the time format.
T SEP	**COLON** COMMA	Sets the time separator as a colon or a comma.

Table 3-7. FEATUR Submenu Parameters (Continued)

3.6.4 FEATUR Menu, REGULA / INDUST Submenu

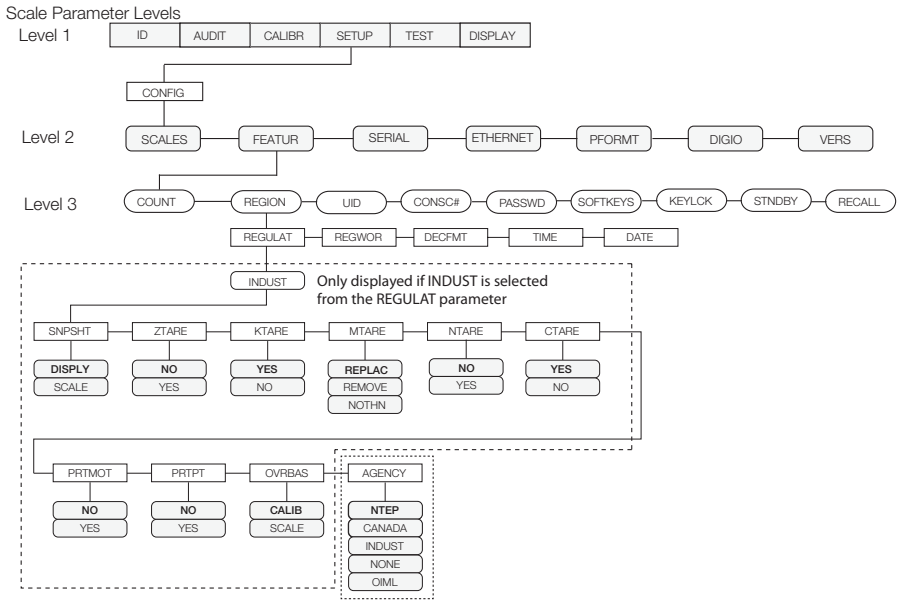

Figure 3-9. FEATUR Menu, REGULA/INDUST Submenu

FEATUR Menu, REGULA / INDUST Submenu		
Parameter	**Choices**	**Description**
LEVEL 6, REGULA / INDUST submenu		
SNPSHT	**DISPLY** SCALE	Display or Scale weight source.
ZTARE	**NO** YES	Remove tare on ZERO.

Table 3-8. REGULA / INDUST Submenu Parameters

FEATUR Menu, REGULA / INDUST Submenu		
Parameter	**Choices**	**Description**
LEVEL 6, REGULA / INDUST submenu		
KTARE	**YES** NO	Always allow keyed tare.
MTARE	**REPLAC** REMOVE NOTHIN	Multiple tare action.
NTARE	**NO** YES	Allow negative or zero tare.
CTARE	**YES** NO	Allow CLEAR key to clear tare/accumulator.
PRTMOT	**NO** YES	Allow print while in motion.
PRTPT	**NO** YES	Add PT to keyed tare print.
OVRBAS	**CALIB** SCALE	Zero base for overload calculation. CALIB = Calibrate Zero SCALE = Scale Zero
AGENCY	**NTEP** CANADA INDUST NONE OIML	Selects the agency having jurisdiction over the scale site. • OIML, NTEP, and CANADA modes allow a tare to be acquired at any weight greater than zero. NONE allows tares to be acquired at any weight value. A tare can be cleared only if the gross weight is at no load. NONE allows tares to be cleared at any weight value. • NTEP and OIML modes allow a new tare to be acquired even if a tare is already present. In OIML mode, printing is not allowed if the scale is more than -20dd. In CANADA mode, the previous tare must be cleared before a new tare can be acquired. • NONE, NTEP and CANADA modes allow the scale to be zeroed in either gross or net mode as long as the current weight is within the specified ZRANGE. In OIML mode, the scale must be in gross mode before it can be zeroed; pressing ZERO in net mode clears the tare. • INDUST provides a set of subparameters to allow customization of tare, clear, and print functions in non-legal-for-trade applications. The value specified for this parameter affects the function of the front panel TARE and ZERO keys. See Section 9.8 on page 74 for more information.

Table 3-8. REGULA / INDUST Submenu Parameters (Continued)

3.6.5 Serial, PFORMT, DIG I/O, VERS Submenus

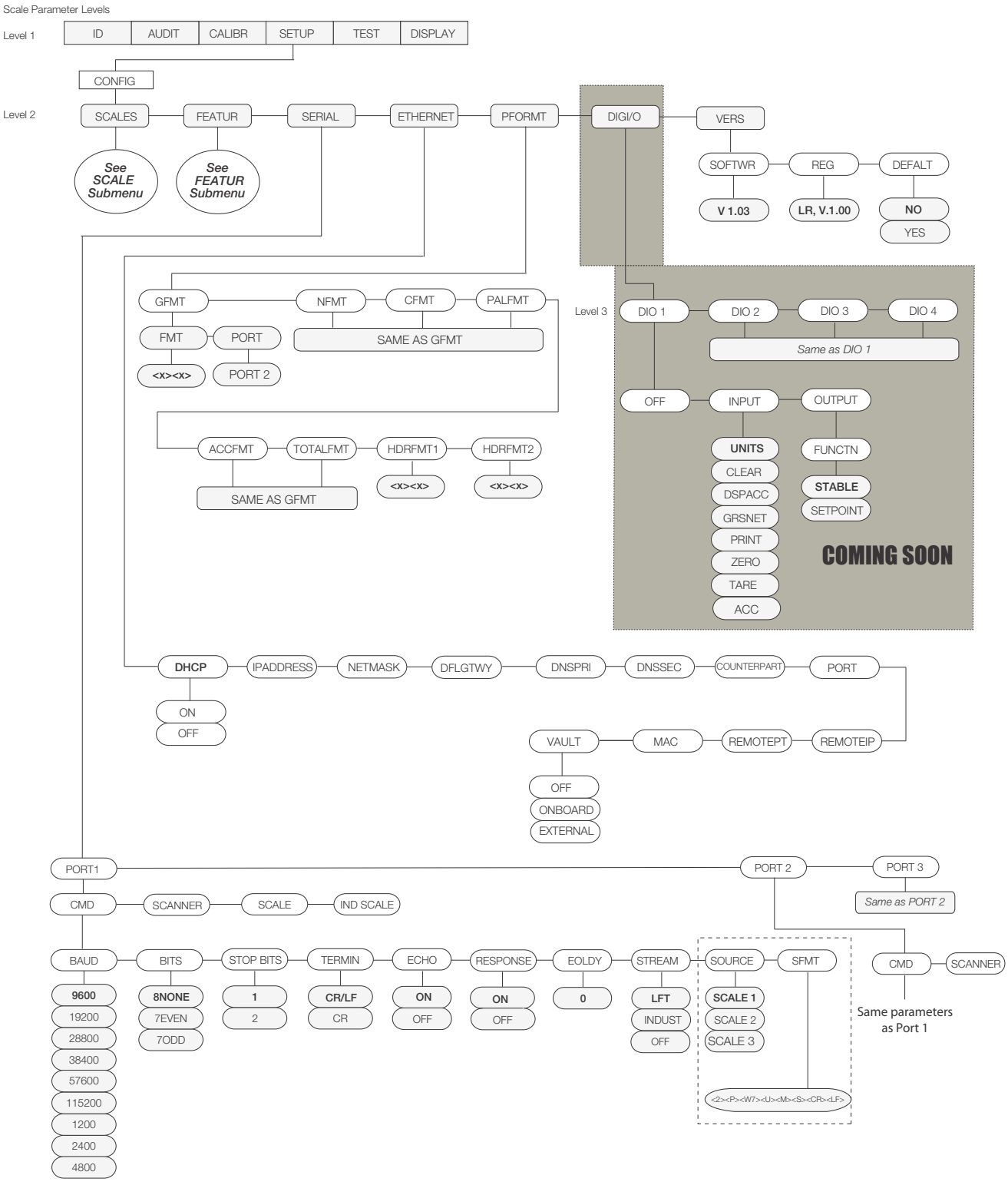

Figure 3-10. Serial, PFORMT, DIG I/O, VERS Submenus

SETUP Menu		
Parameter	**Choices**	**Description**
Level 2 submenus		
SCALE	See Section 3.6.1 on page 18	Configure scale settings. See the level 3 submenus of Table 3-5 on page 20 for parameter descriptions.
FEATURE	See Section 3.6.3 on page 24	Set counting options, region settings, view Unit ID, and set consecutive numbering. See level 3 submenus of Table 3-7 on page 25 for parameter descriptions.
SERIAL	PORT 1 PORT 2 PORT 3 (Option Card)	Configure communications ports. See level 3 submenus below for parameter descriptions.
ETHERNET **CURRENTLY WORKS WITH WEIGHVAULT. EXPANDED CAPABILITIES COMING SOON.**	DHCP IPADDRES NETMASK DFLTGTWY DNSPRI DNSSEC COUNTERPART PORT REMOTEIP REMOTEPT MAC VAULT	DHCP = on/off for static IP ADDRES = Address leased or statically set NET MASK = sub net address DFLTGTWY = default gateway DNSPRI = primary domain server IP number DNSSEC = secondary domain server IP number LCLHSTNM = local host name PORT = port number used REMOTE IP = remote IP number using Weighvault REMOTE PT = remote port number using Weighvault MAC = views the MAC address and is non-changeable VAULT = on or off
PFORMT	GFMT NFMT CFMT PALFMT ACCFMT TOTALFMT HDRFMT1 HDRFMT 2	Sets the print format for gross weight, net weight, count, pallet, accumulate, total, header 1 and header 2.
DIG IO **COMING SOON**	DIO 1 DIO 2 DIO 3 DIO 4	Assign digital input/output functions.
VERS	SOFTWR REG	Displays the software version. Displays the regulatory version.
Level 3 submenus - Under the Level 2 Serial Feature		
PORT 1 PORT 2 PORT 3	CMD SCANNER BAUD BITS STOPS BITS TERMIN HEADERS EOLDLY SFMT	Specifies Port 1 through 3's mechanism for triggering a transmission of data, print message, baud rate, bits, stop bits, termination character, end-of-line delay, and echo. see level 4 submenu for parameter descriptions.
Level 3 submenus - Under the Level 2 Ethernet Feature		
VAULT	OFF ON BOARD EXTERNAL	Selets on or off Using on board RJ45 Ethernet connections Using wireless port connections

Table 3-9. Serial, PFORMT, DIG I/O, VERS submenu parameters

SETUP Menu		
Parameter	**Choices**	**Description**
Level 3 submenus - Under the Level 2 Version Feature		
SOFTWR	**V1.XX**	Displays the software version
REG	LR, V 1.XX	Displays the legally relevant version
Level 3 submenus - Under the Level 2 DIGIO Feature		
DIGIO	DIO 1-4	
Level 3 submenus - Under the Level 2 PFORMT Feature		
GFMT		Gross format
NFMT		Net format
CFMT		Count format
PALFMT		Pallet format
ACCFMT		Accumulator format
TOTALFMT		Total format
HDRFMT1		Header 1 format
HDRFMT2		Header 2 format
Level 4 Submenus - Under the Level 3 DIO Feature		
OFF		Turns the digital input/output off.
INPUT	**UNITS** CLEAR DISPACC GRSNET CLRCN PRINT ZERO TARE	Digital input functions
OUTPUT	FUNCTN	Digital output functions.
Level 3 submenus - Under the Level 3 PORT Feature		
CMD	BAUD BITS STOP BITS TERMIN ECHO RESPONSE EOLDLY STREAM **SOURCE **SFMT	Sets up the transmission information for the command. ** For SOURCE and SFMT to appear on menu display, you must first enable Legal for Trade parameter under STREAM
SCANNER	BAUD BITS STOP BITS TERMIN HEADERS	Sets up the transmission information for the scanner.
SCALE	BAUD BITS STOP BITS TERMIN EOLDLY SFMT	Sets up the transmission information for scale 3.

Table 3-9. Serial, PFORMT, DIG I/O, VERS submenu parameters (Continued)

SETUP Menu		
Parameter	**Choices**	**Description**
IND SCALE	BAUD BITS STOP BITS TERMIN EOLDY SFMT	Sets up the transmission information for the industrial scale parameter.

Table 3-9. Serial, PFORMT, DIG I/O, VERS submenu parameters (Continued)

3.7 Calibration Menu

See Section 4.0 on page 39 for calibration procedures. The *Calibration* menu can be protected by assigning a password in the Feature menu.

Note ***The Counterpart requires the WZERO and WSPAN points to be calibrated. The linearity points are optional, but must NOT duplicate zero or span. During calibration, the TARE key acts as a data entry confirmation key. It also acts as an EXECUTE key, and accepts the value if calibration was successful.***

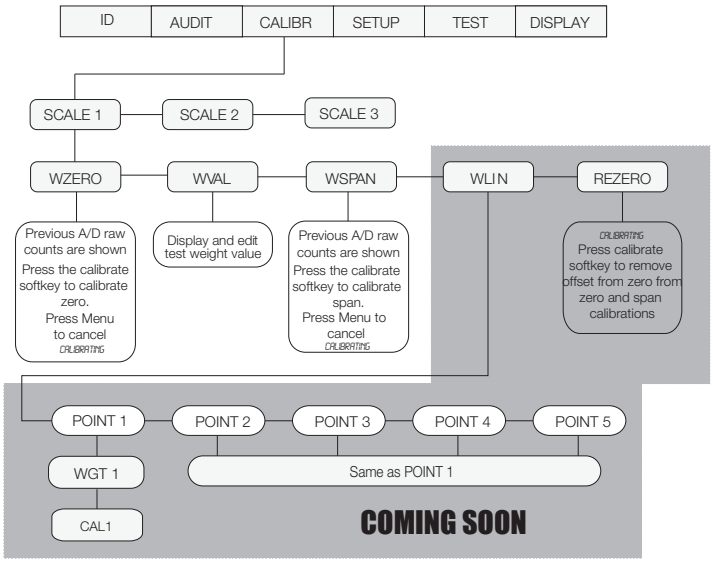

Figure 3-11. Calibration Menu

CALIBR Menu		
Parameter	**Choices**	**Description**
Level 2 submenus		
WZERO	—	Press the calibrate softkey and the A/D raw counts will be displayed. Press calibrate softkey again to calibrate zero, or press MENU to cancel. “CALIBRATING” will be appear prior to automatically moving to WVAL.
WVAL	—	Press calibrate softkey to display and edit the test weight value. Press calibrate softkey again to move to WSPAN.
WSPAN	—	Press calibrate softkey and the A/D raw counts will be displayed. Press calibrate softkey to calibrate the span or press MENU to cancel. “CALIBRATING” will be appear prior to automatically moving to WLIN.
WLIN **COMING SOON**	POINT 1 — POINT 5	WGT 1 allows you to display and edit the test weight value. Press calibrate softkey to edit the value. CAL1 allows you to calibrate and display the raw A/D value. Press TARE to perform calibration. Press calibrate softkey to will move to the next calibration point. **Note** ***The linearity points are optional, but must NOT duplicate zero or span. They must be between zero and span.***
REZERO **COMING SOON**	—	Press calibrate softkey to remove an offset value from the zero and span calibrations (e.g. if hooks or chains are being used during calibration). **Note** ***Use this parameter only after WZERO and WSPAN have been set. See Section 4.1 on page 39 for more information about using this parameter.***

Table 3-10. Calibration Menu Parameters

3.8 Test Menu

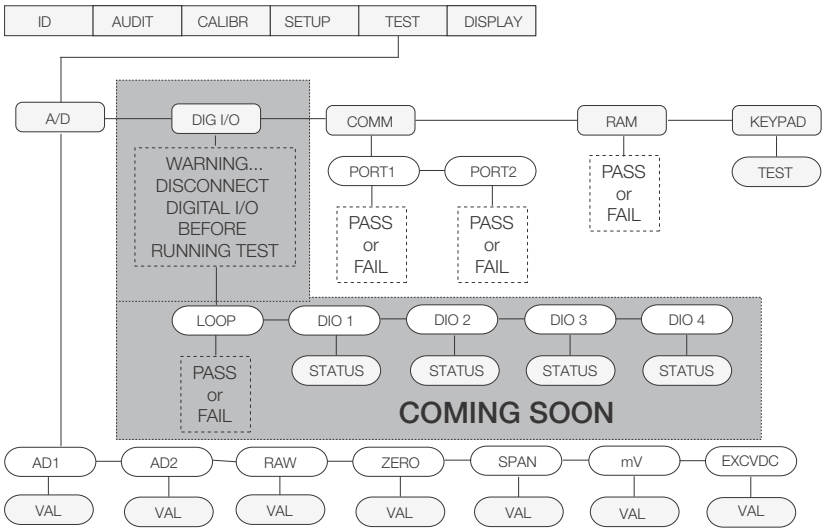

Figure 3-12. Test Menu

TEST Menu		
Parameter	**Choices**	**Description**
Level 2 submenus		
A/D	AD1 AD2 EXCVAC	Gives details of current or live A/D counts as well as stored zero and span A/D values. Shows voltage levels for signal and excitation voltages.
DIG I/O **COMING SOON**	LOOP DIO 1 DIO 2 DIO 3 DIO 4	Tests your digital I/O ports. If they are functioning, "PASS" is displayed. If they are not functioning, "FAIL" is displayed. **Note** ***Both inputs and outputs are active low. They go to a ground state when active.*** **Warning** ***The I/O ports become activated when the test is performed. Make sure any equipment is disconnected prior to performing this test to avoid it being inadvertently activated.***
COMM	PORT1 PORT2	Performs a loopback test on the serial ports. If they are functioning, "PASS" is displayed. If they are not functioning, "FAIL" is displayed.
RAM	TEST	Tests the unit's memory. if it is functioning, "PASS" is displayed. If it is not functioning, "FAIL" is displayed.
KEYPAD	TEST	Tests the unit's individual keypad buttons by displaying the name of the key pressed. If nothing is displayed, the key is not functioning. Press the Menu key to exit the test.
Level 3 submenus - Under Level 2 A/D Feature		
RAW	VAL	Displays the live current raw A/D count.
ZERO	VAL	Displays the captured A/D Zero calibration value.
SPAN	VAL	Displays the captured A/D Span calibration value.
mV	VAL	Displays the live current millivolt signal voltage.
EXCVDC	VAL	Displays the current excitation voltage.

Table 3-11. TEST Menu Parameters

TEST Menu		
Parameter	**Choices**	**Description**
LOOP	TEST	Performs a loop test on dig I/O cards.
DIO 1 DIO 2 DIO 3 DIO 4	STATUS	Displays the status of each individual digital I/O port. If set as input, the display shows input stats IN HI or IN LO. If set as output, pressing **Enter** toggles the output between HI and LO. OUT HI or OUT LO. OUT LO is active.
PORT1 PORT2	TEST	Performs a loopback test on serial port 1 or 2. Connect jumper TX and RX together on port 1 or port 2 before testing.

Table 3-11. TEST Menu Parameters

3.9 Display Menu

There are three display settings on the *Counterpart.*

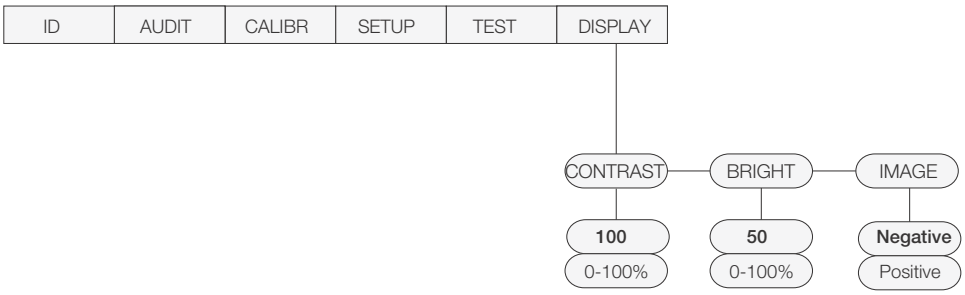

Figure 3-13. DISPLAY Menu

Setting the display parameters from this top level menu is temporary - after a power cycle, the values will revert to their previous values. Changes made to these parameters through the CONFIG menu are kept through a power cycle.

3.10 ID Menu

The ID menu displays parameters for registers from 1 to 150. Sub-parameters are shown below.

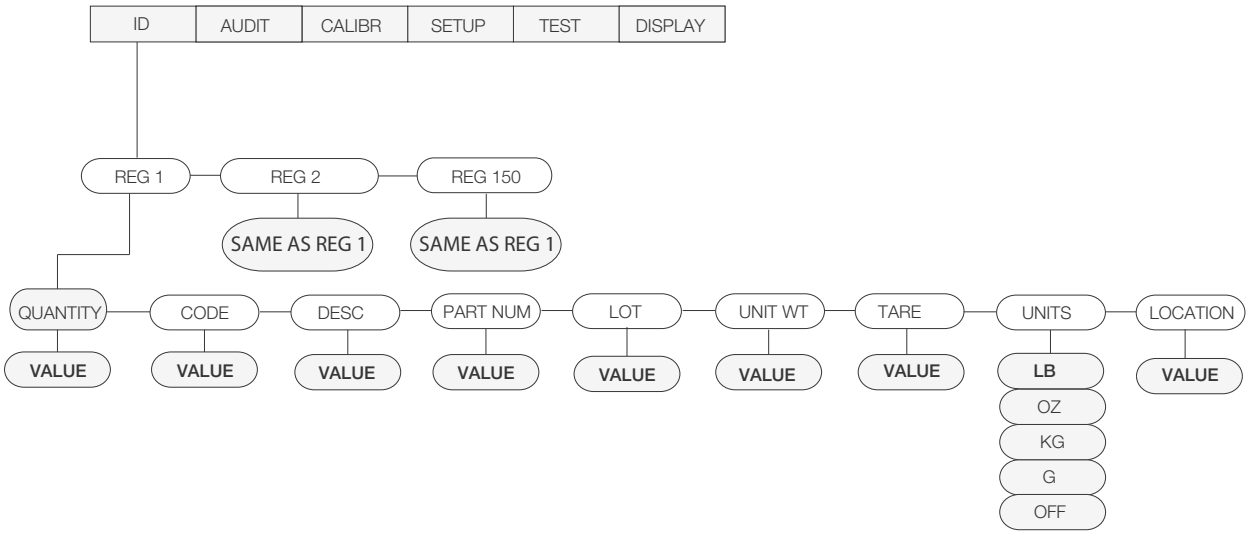

Figure 3-14. ID Menu

ID Menu		
Parameter	**Choices**	**Description**
Level 2 submenus		
REG 1, 2 - 150	QUANTITY CODE DESCRIPTION PART NUMBER LOT UNIT WEIGHT TARE UNITS LOCATION	

Table 3-12. ID Menu Parameters

4.0 Calibration

The *Counterpart* can be calibrated using the front panel, EDP commands, or Revolution®.

Note ***Calibration can be performed in two places within the menu: the CALIBR menu shown in Figure 4-1 and the SCALE submenu shown in Figure 3-6 on Page 18. The CALIBR menu shown in Figure 4-1 is a "quick access" calibration; for more in-depth scale setup and calibration, use the menus found under SETUP»CONFIG»SCALE (see Figure 3-6 on Page 18).***

Calibration consists of the following steps:

- Zero calibration
- Entering the test weight value
- Span calibration
- Optional five-point linearization
- Optional rezero calibration for test weights using hooks or chains.

Note ***The Counterpart requires the WZERO and WSPAN points to be calibrated. The linearity points are optional, but must NOT duplicate zero or span. During calibration, the TARE(Enter) key acts as a data entry confirmation key. The soft calibrate key accepts that value.***

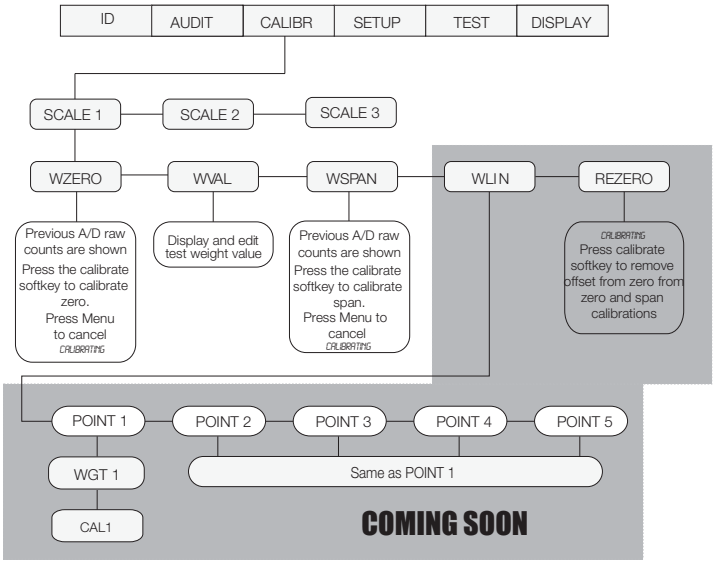

Figure 4-1. Calibration (CALIBR) Menu

4.1 Front Panel Calibration

1. Press the **MENU SETUP** button, then press ▷ until the display reads *CALIBR* (see Figure 4-1).
2. Press **TARE(Enter)** or ▽ to go to the scale to be calibrated. Press **TARE(Enter)** or ▽ to go to *WZERO*. Press **TARE(Enter)** once again to display a value and press the *Calibrate softkey* to Calibrate *WZERO.*

Note ***If you do not want to calibrate zero, press Menu to exit.***

3. The indicator displays *CALIBRATING* while calibration is in progress. When complete, press **TARE(Enter)** or △ to advanced to the next prompt (*WVAL*).

Note ***To view the new A/D count, repeat Step 3, but instead of pressing TARE(Enter) while viewing the value, press MENU SETUP to exit.***

4. With *WVAL* displayed, press **TARE(Enter)** or ▽ to display or edit the stored calibration weight value. Press **TARE(Enter)** to store the *WVAL* value and advance to *WSPAN*.
5. With *WSPAN* displayed, press **TARE(Enter)** or ▽ to view the A/D count. Place test weights on the scale equal to WVAL. Press the *Calibrate softkey* to calibrate WSPAN.

Note ***If you do not want to calibrate span, press Menu to exit.***

6. After *Calibrate softkey* is pressed, the indicator displays *CALIBRATING* when complete. Press **TARE(Enter)** or △ and the *SaveExit softkey* or proceed to *WLIN*.

Note ***To view the new A/D count, navigate back to the WSPAN, repeat Step 6; however, instead of pressing Calibrate softkey while viewing the value, press Save/Exit to exit.***

Five-point linearization - COMING SOON

Rezero - COMING SOON

4.2 EDP Command Calibration

To calibrate the indicator using EDP commands, the indicator EDP port must be connected to a terminal or personal computer. See Section 2.7.1 on page 8 for EDP port pin assignments.

Once the indicator is connected to the sending device, do the following:

1. Place the indicator in config mode (display must read *SCALE* - see Figure 3-6 on page 19) and remove all weight from the scale platform. If your test weights require hooks or chains, place the hooks or chains on the scale for zero calibration.
2. Send the SC.WZERO#*n* command to calibrate zero. The indicator displays *CALIBRATING* while calibration is in progress.
3. Place test weights on the scale and use the SC.WVAL#*n* command to enter the test weight value in the following format:
   SC.WVAL=*nnnnnn*<CR>
4. Send the SC.WSPAN#*n* command to calibrate span. The indicator displays *CALIBRATING* while calibration is in progress.
5. Up to five linearization points can be calibrated between the zero and span calibration values. Use the following commands to set and calibrate a single linearization point:
   SC.WLIN.V1=*nnnnn*<CR>
   SC.WLIN.C1<CR>

   The SC.WLIN.V1#*n* command sets the test weight value (*nnnnn*) for linearization point 1. The SC.WLIN.C1#*n* command calibrates the point. Repeat using the SC.WLIN.V*x* and SC.WLIN.C*x* commands as required for additional linearization points.
6. To remove an offset value, clear all weight from the scale, including hooks or chains used to hang test weights, then send the SC.REZERO#*n* command. The indicator displays *CALIBRATING* while the zero and span calibrations are adjusted.
7. Send the SC.KUPARROW#*n* or SC.KEXIT#*n* EDP command to return to normal mode.

4.3 Revolution® Calibration

To calibrate the indicator using Revolution, the indicator EDP port must be connected to a PC running the Revolution configuration utility.

1. Place the indicator in config mode (display reads *SCALE*, *see* Figure 3-6 on page 19) and remove all weight from the scale platform.
2. From Revolution, select File » New.
   The *Select Indicator* dialog box appears.
3. Select *Counterpart* and click OK.
4. From the *Communications* menu, select Connect.
5. From the left pane, expand the *Scale* selection and click the Scale button.

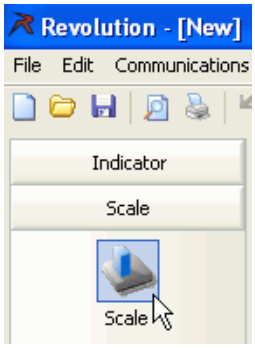

Figure 4-2. Scale Button

6. From the *Tools* menu, select *Calibration Wizard*.
7. Click *NEXT* to begin the Calibration Wizard.
8. Select whether you want to perform a standard calibration or a standard with multi-point linearization and click *NEXT*.
9. In the text box, enter the test weight value be used for span calibration.
10. Select the checkbox if you are using chains or hooks during the calibration, then click *NEXT*.
11. Remove all weight from the scale and click *Click to Calibrate Zero* to begin zero calibration. If your test weights require hooks or chains, place them on the scale for zero calibration.
12. When zero calibration is complete, the Calibration Wizard prompts you to place test weights on the scale. Place the test weights on the scale, then click *Click to Calibrate Span*.
13. If you chose to perform linear calibration, the Calibration Wizard now displays prompts (1–5). Enter the weight value for Linear Point #1, place test weights on scale and click *GO*. Repeat for additional linearization points, then click *NEXT*.
14. The new and old calibration settings are displayed. To accept the new values, click Finish. To exit and restore the old values, click Cancel.

4.4 More About Calibration

The following topics provide additional information about compensating for environmental factors (Section 4.4.1) and diagnostic information for determining expected zero and span coefficients.

4.4.1 Adjusting Final Calibration

Calibration may be affected by environmental factors including wind, vibration, and angular loading. For example, if the scale is calibrated with 1000 lb, a strain test may determine that at 2000 lb the calibration is 3 lb high. In this case, final calibration can be adjusted by tweaking WVAL to 998.5 lb. This adjustment provides a linear correction of 1.5 lb per 1000 lb.

To adjust the final calibration, return to the *WVAL* prompt and press **TARE(Enter)** to show the test weight value. Press △ or ▽ to adjust calibration up or down. Press Calibrate softkey to save the value, then press △ to return to the CALIBR menu.

5.0 Scale Operations

The following paragraphs contain detailed operator instructions for Counterpart. Included are instructions to enter tare weights, toggle between net and gross weight, enter unit weights, perform inventory accumulation and reduction, and toggle between scales. All operator instructions are conducted with the scale in the operation mode that is the weighing or normal mode.

Counting scale accuracy is primarily determined by the following factors:

- Sample size (number of pieces)
- Total sample size as a percentage of full scale capacity
- Piece-to-piece weight variation

As a general rule when determining sample size of fairly uniform pieces, the larger the sample size the greater the total sample weight, therefore, the better the counting accuracy. Selecting the smallest capacity scale that can obtain the highest counting resolution should be considered, but should not sacrifice the capacity required for the heaviest container of parts. For this kind of application, a dual-platform scale may be the best selection. There is a direct relationship between piece-to-piece weight variation (non-uniformity) and counting accuracy.

Therefore, elimination of the piece-to-piece weight variations can be accomplished by:

1. Isolating the sample used to calculate the unit weight and use the same sample to re-check the scale.
2. Recalculating the unit weight from lot-to-lot of parts. Parts manufactured on one machine may vary slightly from another machine relative to weight.
3. Tightening the manufacturing tolerances on the parts reduces piece weight variations and increases count accuracy.

The Stand-By Screen

At the stand-by screen the *WEIGHT, UNIT WEIGHT,* and *QUANTITY* displays show zeroes and the annuciator for the platform you are using is illuminated (Scale 1 or 2).

5.1 Weight Unit Switching

The weight units displayed can be changed between Primary, Secondary and Tertiary units during weighing operations by pressing the **UNITS TOGGLE** key.

5.2 Entering Tare Weights

Tare weights can be entered in the scale by one of two methods: one-touch tare or digital tare. Digital tare is used when the tare weight is already known while one-touch tare is used when the tare weight is unknown. If you call up an Item Code already programmed into the *Counterpart* memory and you have a Tare Weight stored for that Item Code, the Tare Weight stored with the Item Code will override one entered digitally or by using the **TARE** key.

5.2.1 One-Touch Tare, Tare Unknown

1. If the tare weight value is not known, place the container, box, or item to be tared on the scale and press **TARE**. The weight display should now show *0* and the *Net* annunciator should illuminate.
2. Remove the container, box, or item from the scale. The weight display should show a negative weight value (weight of the tared container, box, or item).
3. To clear the tare weight, press **TARE** with no weight on the scale, scale should be at gross zero. The Net annunciator will no longer be illuminated.

5.2.2 Digital Tare, Tare Weight Known

1. If the tare weight value is known, use the numeric keypad to key in the value and then press **TARE**. The Net annunciator will illuminate.
2. To reset the tare to zero, press **TARE** again with no weight on the scale while the scale is at Gross Zero and the Zero annunicator is lit.

5.3 Toggling Between Gross and Net

To toggle between net and gross weight, a tare value must be entered into the scale. Follow Section 5.2 to enter a tare value.

After a tare value is entered into the scale, items placed on the scale will cause the net annunciator to illuminate and allow toggling between net weight and gross weight. An example of toggling between net weight and gross weight is shown below:

1. Place 0.5 lb weight on the scale and then press **TARE** once. The weight display should show 0.000 lb.
2. Place another 0.5 lb weight on the scale. The scale weight display should now show 0.500 and the net annunciator should be illuminated.
3. Press the **GROSS/NET** key. The weight display should show 1.000 GROSS WEIGHT, the net annunciator will no longer be illuminated. The unit weight and the quantity displays goes to zero.
4. Press the **GROSS/NET** key. The weight display should now show 0.500 and the net weight annunciator is illuminated again.

5.4 Entering Unit Weights

Entering unit weights can be done either by sampling, as presented in Section 5.4.1, or by key entry as described in Section 5.4.2.

EXTENT OF INSUFFICIENT SAMPLES controls unit weight sampling. The default setting for the SPEC is 0.1 percent.

SAMPLE QUANTITY determines the number of pieces the scale assumes are on the platter when you press the SAMPLE key to calculate the unit weight. The default setting for the 10 pieces.

XFRUNITWT sets whether the unit weight determined by sampling is automatically transferred from Scale 1 to Scale 2. The default setting AUTOMATIC.

UNIT WEIGHT BASE controls whether the unit weight is displayed per 1000 pieces or per 1 piece. The default settings for this 1000 pieces.

Unit Weight per 1000 Pieces vs. Unit Weight per 1 Piece

The scale's internal microprocessor calculates unit weights to several decimal places. However, the scale display generally can only show Unit Weight to a maximum of 8 characters (or 7 places and a decimal point). If this Unit Weight is recorded from the scale display and entered by key entry, this can introduce errors in the Unit Weight and consequently in the counts. This error increases as the Unit Weight of the parts being counted decreases.

Example: A sample of 10 zener diodes is placed on the scale. The Unit Weight is computed to be 0.000653642 lbs. However, the scale has a 7 character display for Unit Weight (or 6 places after the decimal point - 0.000000) so the scale can only display 0.000653 as the Unit Weight. If this Unit Weight were recorded and keyboard entered in future counting operations, the resulting error would be: $\left(\frac{0.000653642 - 0.000653}{0.000653642} \times 100\right) = .098\%$

On the other hand, with entry of the Unit Weight as "weight per 1000 pieces" the decimal place is, in effect, moved three places to the right, allowing 3 more decimal places of accuracy. In this example, the entry would be made as 0.653642 per 1000 pieces, eliminating the error.

As a practical note, entering unit weights per 1000 pieces also lessens the chances of entering the wrong number of zeros when keying in weights with many leading zeros. Incorrect entry of unit weights is a common cause of inaccurate counting.

When might you want to use unit weight per 1 piece? Generally in one of two cases:

1. If you are working with other existing systems or procedures that are already set up to record unit weight per piece (inventory systems, labeling requirements, etc).
2. If the unit weight or your pieces is more than 100 lbs, the number of digits in the scale's Quantity display will not be able to fully display counts of more than 100 pieces.

5.4.1 Unit Weight Operation by Sampling

Unit weight operation by sampling is accomplished by placing a 10 piece sample on the scale and then pressing the **SAMPLE** key. The scale calculates a unit weight based on the weight of the sample. The following paragraphs detail the procedure with UNIT WEIGHT either set at on or off.

Default settings are placed at 10 pieces but if you want to key in a larger sample, key in the quantity and press **TARE(Enter)**.

Unit Weight Update Set to "Update: Off" (Default)

Parts can be sampled (generating a new unit weight) or a unit weight can be scanned but the new unit weight is not saved into the stored copy of the loaded ID record.

Unit Weight Auto-Recomputing Set to "1: On"

Parts can be sampled (generating a new unit weight) or a unit weight can be scanned but the new unit weight is not saved into the stored copy of the loaded ID record unless the existing unit weight is zero.

5.4.2 Unit Weight Operation by Key Entry

Unit weight operation by key entry is accomplished by using the numeric keypad to enter the known value of the unit weight and then pressing the **UNIT WEIGHT** key. An example of unit weight operation by key entry is shown below:

1. With the display in the weighing mode, enter the known unit weight using the keyboard, for example, 200.00.
2. Press **UNIT WEIGHT** key to enter the unit weight.
3. Place a 2 lb. weight on the scale. The scale displays the quantity for the weight placed on the scale, for example, the weight display reads 2.000, the unit weight display reads 200.00, and the quantity display reads 10).

You can also enter a weight as APW (Average Piece Weight) or Unit Weight per thousand.

To clear the unit value, enter 0 and push the unit weight key.

Piece Weight Enhancement

After performing a sample process, the unit determines the maximum number of pieces that could be accurately used for a recompute. If the number of pieces on the scale is less than the recompute value, the RECOMP annunicator will be shown.

1. Place items to be counted on the scale platter, make sure the *RECOMP* annunciator is still on.
2. Press the **SAMPLE** key while the *RECOMP* annunciator is shown. This will start a sample process using the current piece count (instead of the SAMPLEQTY value) as the sample quantity.

Negative Counting (Full Box Counting)

Just as you can count by adding parts to the scale, you can also count by removing parts from the scale. This is called "negative counting" because a negative weight is displayed while counting. Contrary to what may seem intuitively logical, you do not use the (-) key to do negative counting. The (-) key is only used to delete an entry in accumulation mode that you want to erase. This procedure does not affect the inventory quantity for this item stored in the scale.

To utilize the negative counting feature, you need to set NEGCOUNT to "On" under the Count Menu.

There are two ways to do this depending on whether at the end you want to see the total amount remaining in the container or the total amount removed from the container.

Counting Out of a Full Container - See Total Amount Remaining in the Container

To carry out this operation you must know the tare weight ahead of time.

1. Place the full container on the scale. Press the **TARE** key.
2. Remove a 10 piece sample to the container and press the **SAMPLE** key. After the unit weight has been calculated, return the 10 piece sample to the container.
3. If you want to see how many are still in the bin you first have to know the tare weight of the bin or container. After removing the parts you want to take out of the bin, simply digitally enter the tare weight of the bin and press the **TARE** key. The scale will display how many parts were left in the bin. To print a label to put on the bin showing the total quantity in the bin, press the **PRINT** key.

Negative Counting - Total Removed Displayed at the End

With this procedure you can count accurately out of a full container for kitting, shipping, etc.without having to know the tare weight of the container.

1. Place a full container on the scale and press **TARE**.
2. Remove a 10 piece sample from the container and press **SAMPLE**. After the unit weight has been calculated, return the 10 piece sample to the container.
3. Remove the number of pieces you need for kitting, shipping, etc. The amount removed will be displayed. If you need a label for each kit or container, press the **PRINT** key after removing each batch of pieces.

5.5 IDs

IDs are used to save and recall previously set codes, descriptions, unit weight, and tare preferences. The *Counterpart* has the capacity to store up to 150 individual IDs. There are three ways that IDs can be entered and set. Those three ways include:

1. Normal
2. Through Count Mode
3. Through Revolution

To enter alpha ID characters you can double press the numeric keypad to obtain alpha characters much like accessing alpha characters on a cell phone keypad.

To store more than 150 IDs, WeighVault is required (see Section 5.5.5 on page 48).

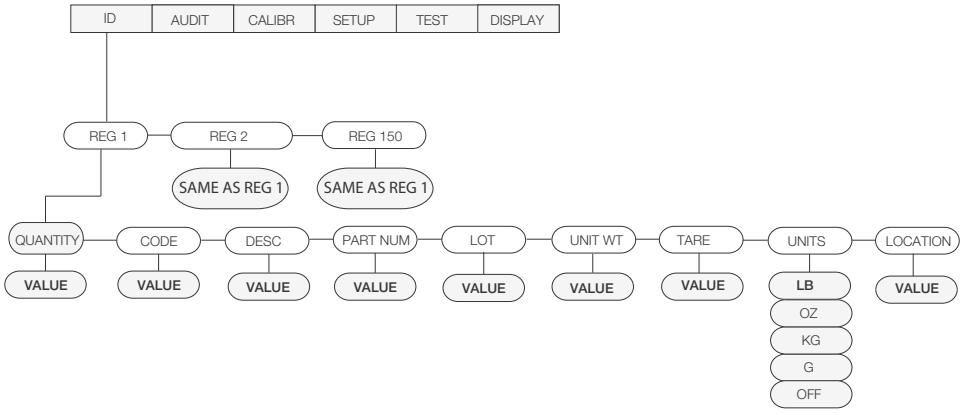

Figure 5-1. ID Menu

5.5.1 Setting an ID Using the Normal Mode

1. Press the **MENU SETUP** key

to access this menu.
2. Press ◁ to ID and then press ▽ and you will be at REG1.
3. Navigate to the REG number you want to set (1-150) by using the ▷ and ◁ keys.

All menus have wrap-around functionality. If you are at ID1 and want to access ID150, you can quickly do so by moving backwards through the menu.

4. When you have reached the REG number you want to set, press ▽ to select that register number.
5. Press ▽ and enter the CODE value - either the numeric or alpha-numeric is acceptable. Thirty two characters can be entered and 25 characters maximum for bar code entries. This is the code that will be used to recall the ID.
6. When the desired value is entered, press **TARE(Enter)**.
7. Enter in the information for description, part number, lot number, unit weight, tare, etc. with all entries being optional.
8. Press **TARE(Enter)** again to accept the value(s).
9. Press △ to advance back up to REG. Press △ one more time, the *DONE* softkey is displayed.
10. When complete, push the *DONE* softkey.

Enter Lot Number - Optional

1. "*LOT*" will be displayed. Press ▽ key to enter the alpha numeric value using the Counterpart keypad.
2. Press the **TARE(Enter)** key to accept.

Enter Unit Weight - Optional

1. "*UNIT WT*" will be displayed. Press ▽ and enter the unit weight value using the Counterpart keypad.
2. Press the **TARE(Enter)** key to accept.

Enter Tare - Optional

1. "*TARE*" will be displayed. Press ▽ and enter the tare value using the Counterpart keypad.
2. Press the **TARE(Enter)** key to accept.

Enter Units - Optional

1. "*UNITS*" will be displayed. If you need to adjust the units, use the ◁ and ▷ keys to adjust the selection or press ▽ to view the current setting.
2. Use the △ key or the **TARE(Enter)** key to store the setting.

Enter Location - Optional

1. "*LOCATION*" is displayed. Use the ▽ key and enter a value. Push the **TARE(Enter)** key to store.

5.5.2 Using a Stored ID

1. Press the **CODE** (softkey needs to be set up) key.
2. Counterpart responds with a code #=> with a prompt. Enter the *ID* code.
3. Press **TARE(Enter)**.

Note ***Press code and then enter a zero to unload an ID code.***

5.5.3 Adding an ID From Count Mode

1. Press the *CODE* softkey.
2. Add in the ID number.
3. If the ID number is not already in the database, *Counterpart* prompts, *Not Found, Save as New ID*?
4. Select Yes or No. By selecting Yes, *Counterpart* will store that ID code into the first open register. By selecting No, you will go back to the Counting mode screen.

5.5.4 Adding an ID Through Revolution

To add an ID using Revolution, you must have Revolution installed on your computer. Visit **www.ricelake.com** to download this free configuration software.

1. Unplug power to Counterpart.
2. Wire cable between computer and Counterpart.
3. Plug in power to Counterpart and press Counterpart's **POWER** key.
4. Open Revolution on computer and go to Base Configuration, >> IDs
5. To upload IDs from Counterpart, select *Connect* from the Toolbar or under *Communications - Connect*.
6. Select *Communications* then Upload Configuration or Upload Section.
7. Select REG # and add information into the screens as shown in Figure 5-2.

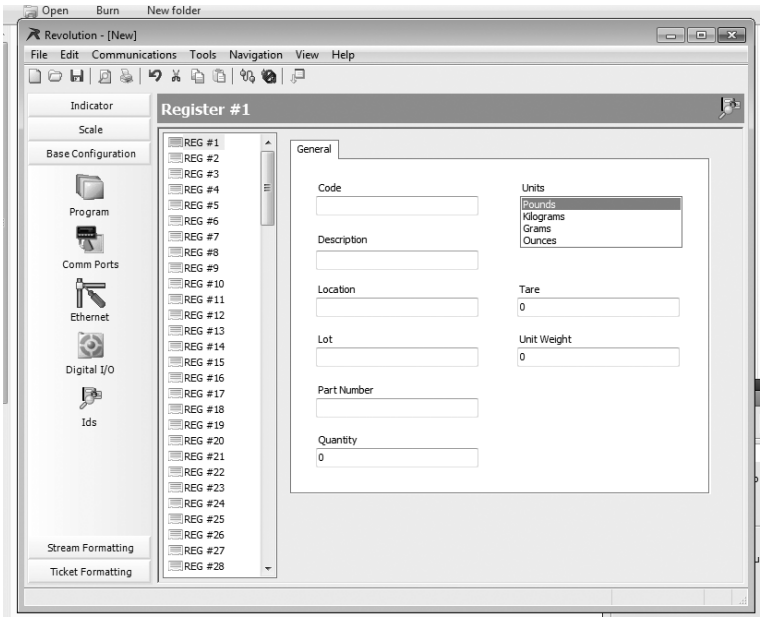

Figure 5-2. Adding IDs Through Revolution

8. To download the ID to Counterpart, connect if Revolution is disconnected, and select *Communications* and either Download Configuration or Download Section.
9. All register IDs are now entered and available through Revolution.

Note ***By Uploading ID's using Revolution and saving them to a file the ID's can be backed up for future use.***

5.5.5 WeighVault

WeighVault is a PC program which allows *Counterpart* users to add, edit, and access IDs over a network connection. WeighVault surpasses the *Counterpart*'s 150 ID limitation and eliminates front-panel entry of ID parameters. It also collects data as transactions occur, and provides detailed transaction and productivity reports which can be exported to Excel, Word, or PDF. For WeighVault to function, the following criteria must be met:

- Use on-board Ethernet or wireless option (PN72117 Ethernet TCP/IP Interface Installation and Configuration Manual)
- IP address assigned to the *Counterpart* (Refer to PN72117 Ethernet TCP/IP Interface Installation and Configuration Manual) (If using option)
- WeighVault enabled in the *Counterpart* menu (ETHERNET menu; see Section 3.6.5 on page30). Table 5-1 lists parameters that must be entered in order for WeighVault to work.

Parameter	Default
DHCP	Consult with network administrator
IP ADDRESS	Static IP Address - Consult with network administrator
NET MASK	255.255.255.0 - Consult with network administrator
PORT	Port 10001
REMOTE IP	IP address of computer running WeighVault
REMOTE PT	5466
VAULT	Onboard or external if using a wireless option

Table 5-1. WeighVault Default Settings

Note ***The above mentioned default settings only apply if the* VAULT *parameter is set to ONBOARD. See Figure 3-10 on page 30.***

Once the above criteria have been met, IDs can then be entered into WeighVault and saved on the PC's hard drive. The *Edit Product* dialog box in Figure 5-3 shows ID parameters which can be saved in WeighVault.

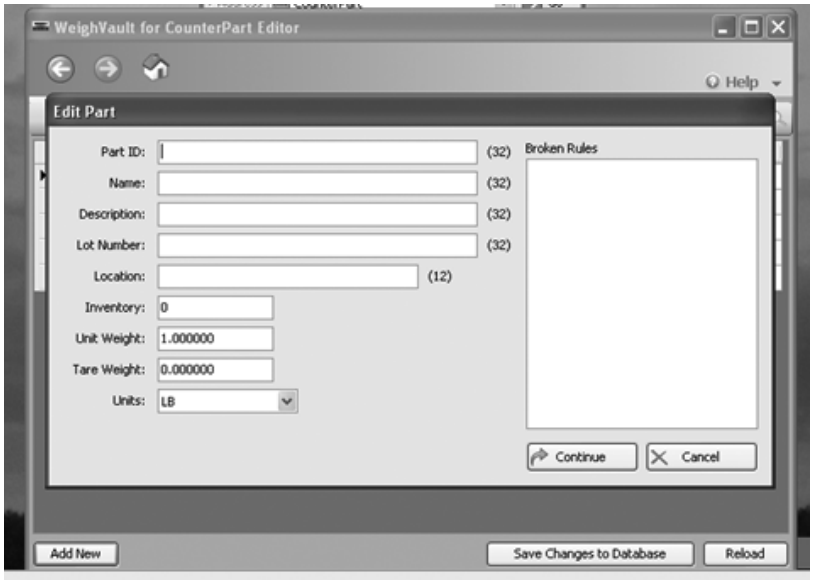

Figure 5-3. WeighVault Edit Product Dialog Box

To access a saved ID from WeighVault over the network connection,

1. Using the *Counterpart* front panel, press the **CODE** key.
2. Enter an **ID CODE** value.
3. Press the **TARE(Enter)** key. The ID CODE is loaded and ready to use.

5.6 Totalization Counts

Counterpart has a totalization function that allows you to totalize the quantity of several weighings together. This is especially helpful if putting together parts kits

Use the following steps to totalize parts.

1. Conduct a sampling process to determine the unit weight of the pieces. Or key in a known unit weight or recall an ID.
2. Enter a known tare weight or place an empty container on the scale to perform tare function. If an ID was recalled in step 1 its tare value is already loaded.
3. Place container 1 (full of parts) on the scale. The number of pieces in the container is shown in the *"PCS"* area of the display.
4. Press the *Total +* softkey to store the number of pieces in container 1. The memory (*M*) icon is shown. The total value is shown in place of the piece weight value and will be labeled *"ttl".*
5. Remove container 1 and place container 2 (full of parts) on the scale.
6. Press the *Total +* softkey, the accumulated total is now equal to container 1 plus container 2. The displayed total is also updated.
7. Continue to add containers in the same totalization method. The total number of parts stored in all containers will be stored in the totalization register and shown on the display.

5.7 Parts Reduction Counts

Parts reduction can also be done by using the - key while the scale is in the weighing mode and the memory annunciator is on.

1. Conduct a sampling process to determine the unit weight of the pieces. Or key in a known weight or recall an ID.
2. Enter known tare weight, or place an empty container on the scale to perform tare function. If ID was recalled in step one its tare value is already loaded.
3. Place container (full of parts) on the scale. The number of pieces in the container is shown in the *"PCS"* area of the display.
4. Press the *Total +* softkey to store the number of pieces in the container. The memory (*M*) icon is shown. The total value is shown in place of the piece weight value and will be labeled *"ttl".*
5. Remove the number of parts required from the container and press the *Total -* softkey. The accumulated total will now be equal to previous total minus the number of pieces removed. The displayed total is also updated. The number of pieces remaining in the container is shown in the *"PCS"* area of the display.
6. Repeat step 5 as needed.

Note ***Once part reduction has been started, a press of Total + will give you an error message.***

5.8 Connecting a Barcode Scanner

The *Counterpart* will accept a barcode scanner connected to the unit. In order to use a scanner, you must set the specifications of the *Counterpart* scale to recognize the scanner to the appropriate port and in some cases, do the setup on the scanner required by the scanner manufacturer.

The scanner allows non-contact, instantaneous, and accurate input of unit weight, tare weight, and ID code.

QD2100 Barcode Scanner

If you are using the Quickscan QD2100 barcode scanner sold by Rice Lake Weighing Systems, you can set up the scanner by connecting the scanner (PN121495) to the RS-232 port on the *Counterpart* CPU board.You will also need a cable (PN101555) and an AC power option for the scanner. Connections between the barcode scanner and Counterpart should be wired up as follows:

Pin out	Wire Color
RX	Green
TX	Red
Ground	Black
DIGIO	
5+	

Table 5-2. Barcode Wiring Connections

The default baud rate is set for 9600 for both *Counterpart* and the scanner.

To set up barcode scanner parameters, use the following steps:

1. Navigate through the menu Setup >> Config >> Serial.
2. Set up the selected Port, J5 (Port 1) or J4 (Port 2) for the scanner. .
3. Follow through and set up the various parameters such as 9600 baud, 8 bits, 1 stop bit, none parity.
4. Headers are set to *ON* under the scanner submenu when needing to have headers for IDs, tare and unit weights.
5. If the header is set to *OFF*, the *Counterpart* assumes that all items are ID codes and automatically adds the ID code header.

Header Codes for Bar Codes
ID Code 3
Tare 4
Unit Weight 1

Table 5-3. Header Codes for Bar Codes

5.8.1 Setting up a Softkey

To set up a softkey, use the following steps:

1. Press the **MENU SETUP** key.
2. Navigate through the menu setup to Setup using the ▷ key.
3. Press the ▽ to navigate to *CONFIG*.
4. Press the ▽ to navigate to *SCALES.*
5. Press the ▷ to navigate to *FEATURE.*
6. Press the ▽ to navigate to *COUNT.*
7. Using the ▷ scroll through until you get to *SOFTKEYS*.
8. Scroll down, then using ◁ ▷ scroll through menu selections SK1 through SK12.
9. Press ▽ to assign a softkey to that position
10. Select a choice that you wish to be displayed.
11. Press the △ arrow once the function is selected.
12. Press **Save/Exit** softkey.

6.0 Serial Commands

The *Counterpart* can be controlled by a PC or remote keyboard connected to an indicator serial port. Control is provided by a set of serial commands that can simulate front panel key press functions, display and change setup parameters, and perform reporting functions. This provides the ability to print configuration data or to save to your hard drive.

6.1 The Serial Command Set

The serial command set can be divided into five groups: key press commands, reporting commands, the RESETCONFIGURATION special function command, parameter setting commands, and transmit weight data commands. When a serial command is processed, the *Counterpart* responds with the message *OK*. The *OK* response verifies that the command was received and has been executed. If the command is unrecognized or cannot be executed, the *Counterpart* responds with *??*.

The following sections list the commands and command syntax used for each of these groups.

6.1.1 Key Press Commands

Key press serial commands (see Table 6-1) simulate pressing the keys on the front panel of the indicator. These commands can be used in both setup and normal (weighing) mode. Several of the commands serve as "pseudo" keys, providing functions that are not represented by a key on the front panel.

For example, to enter a 15-pound tare weight:

1. Type K1 and press **ENTER** (or **RETURN**).
2. Type K5 and press **ENTER**.
3. Type KTARE and press **ENTER**.

Command	Function
KMENU	Press the MENU key
KZERO	In weighing mode, press the ZERO key
KUNITS	In weighing mode, press the UNITS key
KPRINT	In weighing mode, press the PRINT key
KTARE	Press the TARE key
KID	In weighing mode, press the ID key. In menu mode, move left in the menu. In data entry mode, move to previous digit.
KGROSSNET	In weighing mode, press the GROSS/NET key (pseudo key)
KGROSS	Go to gross mode (pseudo key)
KNET	Go to net mode (pseudo key)
KDISPACCUM	Display ACCUM (pseudo key)

Table 6-1. Serial Key Press Commands

Command	Function
KDISPTARE	Display tare (pseudo key)
KCLR	Press the CLEAR key
KCLRCN	Reset consecutive number (pseudo key)
KCLRTAR	Clear tare from system (pseudo key)
KLEFT	In menu mode, move left in the menu
KRIGHT	In menu mode, move right in the menu
KUP	In weighing mode, press the UNDER key. In menu mode, move down in the menu. In data entry mode, decrement the current digit.
KDOWN	In weighing mode, press the UNDER key. In menu mode, move down in the menu. In data entry mode, decrement the current digit.
KSAVE	In menu mode, saves the current configuration
KEXIT	In menu mode, saves the current configuration then exits to normal mode
K0–K9	Press number 0 (zero) through 9
KDOT	Press the decimal point (.)
KENTER	Press the ENTER key
KLOCK	Lock specified front panel key. For example, to lock the ZERO key, enter KLOCK=KZERO.
KUNLOCK	Unlock specified front panel key. For example, to unlock the PRINT key, enter KUNLOCK=KPRINT.
KDATE	Display date (pseudo key)
KTIME	Display time (pseudo key)
KESCAPE	Exits the selected parameter. Returns to weigh mode if a parameter is not selected (functions identical to the MENU key in menu mode)
KSOFT*x*	Press softkey number *x*

Table 6-1. Serial Key Press Commands (Continued)

6.1.2 Keypad Lock

The user has the ability to lock or unlock the keypad. The commands are listed in Table 6-2.

Command	Parameter
KEYLCK.NUMBER	Keys can be locked or unlocked. Default for all: Unlock
KEYLCK.PRINT	
KEYLCK.TARE	
KEYLCK.ZERO	
KEYLCK.SAMPLE	
KEYLCK.GROSSNET	
KEYLCK.UNITWT	

Table 6-2. Keypad Lock Commands

6.1.3 ID Commands

Up to 150 codes can be entered under ID commands.

Command	Function
ID.CODE#*n*	(#*n* = ID Code number referenced)
ID.DESC#*n*	(#*n* = item description)
ID.LOCATION#*n*	(*n* = Item location))
ID.LOT#*n*	(#*n* = lot number)
ID.PARTNUMBER#*n*	(#*n* = part number) - Can enter up to
ID.QUANTITY#*n*	(#*n* = quantity)
ID.TARE#1	(weight value)
ID.UNITS#1	(weight value in pounds)
ID.UNITWEIGHT#1	(weight value)

Table 6-3. ID Commands

6.1.4 ETH Commands

ETH commands are parameter setting commands. The commands listed in Table 6-4 can be used.

Command	Parameter
ETH.DEFAULTGATEWAY	Sets IP address 0.0.0.0
ETH.DHCP	ON
ETH.DNSPRIMARY	0.0.0.0
ETH.DNSSECONDARY	0.0.0.0
ETH.IPADDRESS	192.168.0.1
ETH.LOCALHOSTNAME	COUNTERPART
ETH.MACADDRESS	00-00-00-00-00-00
ETH.NETMASK	0.0.0.0
ETH.PORT	10001
ETH.REMOTESERVERIP	0.0.0.0
ETH.REMOTESERVERPORT	5466

Table 6-4. Ethernet Parameters

Command	Parameter
ETH.WEIGHVAULT	OFF

Table 6-4. Ethernet Parameters

6.1.5 Reporting Commands

Reporting commands send specific information to the serial port. The commands listed in Table 6-5 can be used in all modes.

Command	Function
DUMPALL	List all parameter values and ID information
DUMPCONFIG	List all parameter values excluding ID information
DUMPAUDIT	List audit trail information
DUMPIDS	List all ID information
DUMPIDINDEX	List a specific ID by index. See table 6-13 for more information.
DUMPIDCODE	List a specific ID by code. See table 6-13 for more information.
VERSION	Write *Counterpart* software version
P	Write current displayed weight with units identifier. See Section 9.2.1 on page 67.
XE	Returns a 10-digit code representing any error conditions currently shown on the front panel.

Table 6-5. Reporting Commands

Transmitting all configuration settings can be achieved by the DUMPALL command or by pressing PRINT while in menu mode.

6.1.6 Clear and Reset Commands

The following commands can be used to clear and reset the *Counterpart*:

RS: Reset system. Resets the indicator without resetting the configuration.

RESETCONFIGURATION: Restores all configuration parameters to their default values (menu mode only). The RESETCONFIGURATION function can also be initiated by pressing navigating to the **DEFALT** parameter under the VERS menu and selecting YES. Then press **ENTER** to reset the indicator.

All load cell calibration settings are lost when the RESETCONFIGURATION command is run.

CLEARBUFFER: Clears the buffer information.

6.1.7 Parameter Setting Commands

Parameter setting commands allow you to display or change the current value for a particular configuration parameter (Tables 6-6 through 6-12).

Current configuration parameter settings can be displayed in all modes using the following syntax: *command*<ENTER>

Most parameter values can be changed in menu mode only.

Use the following command syntax when changing parameter values: *command=value*<ENTER>, where *value* is either a number or a parameter value. Use no spaces before or after the equal (=) sign. If you type an incorrect command, the display reads *??*.

For example, to set the motion band parameter to 5 divisions, type the following:

SC.MOTBAND=5<ENTER>

For parameters with selectable values, enter the command and equal sign followed by a question mark: *command*=?<ENTER> to see a list of those values. The indicator must be in menu mode to use this function.

Some parameters are valid only if other parameters or parameter values are specified. Restrictions for front-panel configuration also apply to serial command configuration.

Command	Description	Values
SC.GRADS#*n*	Graduations	*1–100000*
SC.ZTRKBND#*n*	Zero track band	0, *0–100*
SC.ZRANGE#*n*	Zero range	1.900000, *0–100*
SC.MOTBAND#*n*	Motion band	1, *0–100*
SC.SSTIME#*n*	Standstill time	*1–65535*
SC.OVRLOAD#*n*	Overload	FS+2%, FS+1D, FS+9D, FS
SC.DIGFLTR1#*n* SC.DIGFLTR2#*n* SC.DIGFLTR3#*n*	Digital filtering	1, 2, 4, 8, 16, 32, 64, 128, 256
SC.DFSENS#*n*	Digital filter cutout sensitivity	2OUT, 4OUT, 8OUT, 16OUT, 32OUT, 64OUT, 128OUT
SC.DFTHRH#*n*	Digital filter cutout threshold	NONE, 2D, 5D, 10D, 20D, 50D, 100D, 200D, 250D
SC.THRESH#*n*	Zero threshold	0–9999999
SC.SMPRAT#*n*	Sample rate	30HZ, 60HZ, 120HZ, 240HZ, 480HZ, 960HZ
SC.PWRUPMD#*n*	Power up mode	GO, DELAY
SC.TAREFN#*n*	Tare function	BOTH, NOTARE, PBTARE, KEYED
SC.PRI.DECPNT#*n*	Primary units decimal position	8.888888, 88.88888, 888.8888, 8888.888, 88888.88, 888888.8, 8888888, 8888880, 8888800
SC.PRI.DSPDIV#*n*	Primary units display divisions	1D, 2D, 5D
SC.PRI.UNITS#*n*	Primary units	lb, kg, g, oz, OFF
SC.ACCUM#*n*	Accumulator enable	ON, OFF
SC.WZERO#*n*	Zero calibration	—
SC.WVAL#*n*	Test weight value	*test_weight_value*
SC.WSPAN#*n*	Span calibration	—
SC.WLIN.F1– SC.WLIN.F5#*n*	Actual raw count value for linearization points 1–5	*0–16777215*
SC.WLIN.V1 SC.WLIN.V5#*n*	Test weight value for linearization points 1–5	*0.000001–9999999*
SC.WLIN.C1– SC.WLIN.C5#*n*	Calibrate linearization points 1–5	—
SC.LC.CD#*n*	Deadload coefficient	—
SC.LC.CW#*n*	Span coefficient	—
SC.LC.CZ#*n*	Temporary zero	—
SC.REZERO#*n*	Rezero	—
SC.SEC#*n*	Secondary units	lb, kg, g, oz, OFF
SC.TER#*n*	Tertiary units	lb, kg, g, oz, OFF

Table 6-6. SCALES Serial Commands

Command	Description	Values
EDP.BAUD#*p*	Port baud rate	1200, 2400, 4800, 9600, 19200, 28800, 38400, 57600, 115200
EDP.BITS#*p*	Port data bits/parity	8NONE, 7EVEN, 7ODD
EDP.STOPBITS#*p*	Port stop bits	1, 2
EDP.PRNMSG#*p*	Print message	ON, OFF

Table 6-7. SERIAL Port Serial Commands

Command	Description	Values
EDP.ECHO#*p*	Port echo	ON, OFF
EDP.EOLDLY#*p*	Port end-of-line delay	*0–255* (0.1-second intervals)
EDP.HEADERS#*p*	Port header	ON, OFF
EDP.INPUT#*p*	Port input	CMD, SCANNER, SCALE, IND SC
EDP.PORT	Port reporting command. It responds to the port you are connected to.	
EDP.RESPONSE#*p*	Port response	ON, OFF
EDP.SFMT#*p*	Port custom stream format	0-200 characters
EDP.SOURCE#*p*	Port source	1, 2, 3
EDP.STREAM#*p*	Port stream	OFF, LFT, INDUST
EDP.TERMIN#*p*	Port termination	CR/LF, CR
STR.POS	Custom stream identifiers	None, Space, + None, Space, -
STR.NEG		
STR.PRI		8 alphanumeric characters
STR.SEC		
STR.TER		
STR.GROSS		
STR.NET		
STR.TARE		
STR.MOTION		2 alphanumeric characters
STR.RANGE		
STR.OK		
STR.INVALID		
STR.ZERO		

Table 6-7. SERIAL Port Serial Commands (Continued)

Command	Description	Values
CFGPWD	Configuration password	0, 1–9999999
CONSNUM	Consecutive numbering	0–9999999
CONSTUP	Consecutive number start-up value	0–9999999
DATEFMT	Date format	MMDDYYYY, DDMMYYYY, YYYYMMDD, YYYYDDMM
DATESEP	Date separator	SLASH, DASH, SEMI
DECFMT	Decimal format	DOT, COMMA
DSPBRIGHT	Sets display intensity	0 (dimmest), through 100 (brightest as a percentage)
KYBDLK	Keyboard lock (disable keypad)	OFF, ON
REG.AGENCY	Regulatory compliance	NONE, OIML, NTEP, CANADA, INDUST
REGULAT=NTEP	Regulatory compliance	NONE, OIML, NTEP, CANADA, INDUST
REG.CTARE	Allow clear keyed tare	NO, YES
REG.WORD	Weighing mode	Gross, Brutto
REG.KTARE	Always allow keyed tare	NO, YES
REG.MTARE	Multiple tare action	REPLACE, REMOVE, NOTHING
REG.NTARE	Allow negative tare	NO, YES
REG.ZTARE	Remove tare on ZERO	NO, YES

Table 6-8. FEATURE Serial Commands

Command	Description	Values
REG.BASE	Zero base for overload calculation	CALIB, SCALE
REG.PRTMOT	Allow print while in motion	NO, YES
REG.PRINTPT	Add PT to keyed tare print	NO, YES
REG.SNPSHOT	Display or Scale weight source	DISPLAY, SCALE
SD	Set date	*MMDDYY*, *DDMMYY, YYMMDD,* or *YYDDMM.* Enter six-digit date using the year-month-day order specified for the DATEFMT parameter, using only the last two digits of the year.
ST	Set time	*hhmm* (enter using 24-hour format)
TIMEFMT	Time format	12HOUR, 24HOUR
TIMESEP	Time separator	COLON, COMMA

Table 6-8. FEATURE Serial Commands (Continued)

Command	Description	Values
GFMT.FMT	Gross demand print format string	See Section 7.0 on page 58 for information about demand print format strings.
NFMT.FMT	Net demand print format string	
ACC.FMT	Accumulator print format string	
CFMT.FMT	Count format	
TOTAL.FMT	Total Format	
HDRFMT1	Header 1 Format	
PALFMT.FMT	Pallet Format	
HDRFMT2	Header 2 Format	

Table 6-9. PFORMT Serial Commands

Command	Description	Values
DIO#*b*	Digital input function	OFF, ZERO, NT/GRS, TARE, UNITS, PRINT, ACCUM, TIMDATE, ESC, CLEAR, DSPTAR, IDKEY, KEY0–KEY9, KEYDP, ENTER, NAVUP, NAVDN, NAVLFT, NAVRGT, KBDLOC, HOLD, CLRCN, GROSS, NET, PRIM, SEC, CLRTAR, CLRACC, TRIGGER
DIO#*b*	Digital output function	OVER, UNDER, ACCEPT, ZEROBD
Digital inputs and outputs are specified by bit number		

Table 6-10. DIG I/O Serial Commands

Command	Description	Value
GFMT.PORT	Set the port for each of these commands	2
NFMT.PORT		
ACC.PORT		
CFMT.PORT		
TOTAL.PORT		
PALFMT.PORT		

Table 6-11. Select Port Serial Commands

6.1.8 Normal Mode Commands

The normal mode print commands (see Table 6-12) transmit data to the serial port on demand in either setup or normal mode.

Command	Description	Values
CONSNUM#*n*	Set consecutive number	*0–9 999 999*
UID#*n*	Set unit ID	nnnnnnn
SD#*n*	Set date	*MMDDYY*, *DDMMYY, YYMMDD,* or *YYDDMM.* Enter six-digit date using the year-month-day order specified for the DATEFMT parameter, using only the last two digits of the year.
ST#*n*	Set time	*hhmm* (enter using 24-hour format)
SX#*n*	Start serial port streaming	OK *or* ?? An EX command sent while in menu mode does not take effect until the indicator is returned to normal mode. The EDP.Stream must be set to LFT or INDUST for this command to work.
EX#*n*	Stop serial port streaming	
XG#*n*	Transmit gross weight in displayed units	nnnnnn UU where nnnnnn is the weight value, UU is the units. **NOTE:** You can also send XGP, XGS, XGT, XTP, etc. to specify primary, secondary or tertiary (P.S.T.).
XN#*n*	Transmit net weight in displayed units	
XT#*n*	Transmit tare weight in displayed units	
XA#*n*	Transmit accumulator value	
RS	Reset system	Soft reset. Used to reset the indicator without resetting the configuration to the factory defaults.

Table 6-12. Normal Mode Serial Commands

6.1.9 Unique Commands

Command	Description
DUMPID.INDEX=*n*	To dump an ID by register
DUMPID.CODE=*n*	To dump an ID by code

Table 6-13. Unique Commands

7.0 Print Formatting

The *Counterpart* provides eight print formats, GFMT, NFMT, TOTALFMT, PALFMT, CFMT, ACCFMT, HDRFMT1 and HDRFMT2. These determine the format of the printed output when the PRINT key is pressed or when a KPRINT EDP command is received. The HDRFMTs must be called from another format.

Each print format can be customized to include up to 500 characters of information, such as company name and address, on printed tickets. You can use the indicator front panel (PFORMT menu), EDP commands, or the *Revolution*® configuration utility to customize the print formats.

Print formats are limited to 500 characters.

7.1 Print Formatting Commands

Table 7-1 lists commands you can use to format the gross, net and count print formats. Commands included in the format strings must be enclosed between < and > delimiters. Any characters outside of the delimiters are printed as text on the ticket.

Command	Description	Supported Ticket Formats
<G>	Gross weight in displayed units	GFMT, NFMT, TOTALFMT, PALFMT, CFMT, ACCFMT HDRFMT1, HDRFMT2
<N>	Net weight in displayed units	
<T>	Tare weight in displayed units. Add four before bracket to print header	
<A>	Accumulated weight in displayed units	
<AC>	Number of accumulator events (5-digit counter)	
<AD>	Date of last accumulator event	
<AT>	Time of last accumulator event	
<UID>	Unit ID number	
<CN>	Consecutive number	
<C>	Piece count, current scale	
<C#n>	Piece count, scale n	
<NL*nn*>	New line (*nn* = number of termination (<CR/LF> or <CR>) characters)*	
<SP*nn*>	Space (*nn* = number of spaces)*	
<SU>	Suppress Units. Toggle weight data format (formatted/unformatted)**	
<TI>	Time	
<DA>	Date	
<TD>	Time & Date	
<H1>	Header 1	
<H2>	Header 2	
<IDC>	Loaded ID Code - 32 characters maximum	
<IDD>	Loaded ID Description - 32 characters maximum	
<IDLC>	Loaded ID Location - 12 characters maximum	
<IDP>	Loaded ID Part Number - 32 characters maximum	
<IDLT>	Loaded ID Lot - 32 characters maximum	
<IDU>	Loaded ID Units - 1 character maximum	
<IDT>	Loaded ID Tare - 9 characters maximum (range 0.0 to 9999999.0)	
<IDW>	Loaded ID Unit Weight - 9 characters maximum (range 0.0 to 9999999.0)	
<IDQ>	Loaded ID Quantity - 11 characters maximum (range -2000000000 to 2000000000)	
<C>	Piece Count, current scale - 7 characters maximum (no explicit maximum value)	
<C#n>	Piece Count, Scale n	
<TTLV>	Totalization Value - 11 character maximum (range -2000000000 to 2000000000)	
<TTLC>	Totalization Count - 4 characters maximum	
<TT>	Transaction Type - gives a “1” for receiving (in) or “0” for (sending out) ***Note: This command cannot be used in any other format except Weighvault***	

Table 7-1. Print Format Commands

Command	Description	Supported Ticket Formats
Gross, net, and tare weights are 8 digits in length, including sign and decimal point, followed by a space and a one- to five-digit units identifier. Total field length with units identifier is 10-14 characters. Depending on what units are configured, the units identifier will be lb, oz, g, or kg.		
Gross, net, tare, and accumulator weights can be printed in any configured weight units by adding the following modifiers to the gross, net, tare, and accumulator weight commands: /P (primary units), /D (displayed units), /S (secondary units), /T (tertiary units). If not specified, the current displayed units (/D) is assumed. Example: To format a ticket to show net weight in secondary units, use the following command: <N/S>.		
UNIT ID and consecutive number (CN) fields are 1–6 characters in length, as required.		
* If *nn* is not specified, 1 is assumed. Value must be in the range 1–99.		
** After receiving an SU command, the indicator sends unformatted data until the next SU command is received. Unformatted data omits decimal points, leading and trailing characters.		

Table 7-1. Print Format Commands

Format	Default Format String	Used When
NFMT	N<NL>A30,75,0,4,1,1,N,"Gross: <G>"<NL>B30,115,0,3,2,4,101,B,"<G>"<NL>A30,300,0,4,1,1,N, "Tare: <T>"<NL>B30,340,0,3,2,4,101,B,"<T>"<NL>A30,525,0,4,1,1,N, "Net: <N>"<NL>B30,565,0,3,2,4,101,B,"<N>"<NL>A30,806,0,3,1,1,N,"<TD>"<NL> P1<NL>	Normal mode, tare in system
PALFMT	N<NL>A416,25,1,4,1,1,N,"ID CODE: <IDC>"<NL>B378,25,1,3,2,4,51,N,"3<IDC>"<NL>A296,28,1,4,1,1,N,"Total QTY: <C>"<NL>B264,22,1,3,2,4,51,N,"<C>"<NL> A179,25,1,4,1,1,N,"Part Name: <IDD>"<NL>A126,25,1,4,1,1,N,"Part Number: <IDP>"<NL>A73,25,1,4,1,1,N,"Lot Number: <IDLT>"<NL>P1<NL>	Print mode
CFMT	N<NL>B371,20,1,3,2,4,51,N,"3<IDC>"<NL>A410,20,1,4,1,1,N,"ID. CODE: <IDC>"<NL>A302,22,1,4,1,1,N,"QTY: <C>"<NL>B264,20,1,3,2,4,51,N,"<C>"<NL>A280,400,1,4,1,1,N,"GROSS <G>"<NL> A225,400,1,4,1,1,N,"TARE <T>"<NL>B189,355,1,3,2,4,51,N,"4<T>"<NL>A120,400,1,4,1,1,N,"NET <N>"<NL>A195,24,1,4,1,1,N,"WT/K OR U W"<NL>B124,20,1,3,2,4,51,N,"1<IDW>"<NL> A47,16,1,4,1,1,N,"<TD>"<NL>A160,24,1,4,1,1,N,"<IDW>"<NL>P1<NL>	Count mode
GFMT	N<NL>A410,32,1,5,2,1,N,"<TOTAL QUANTITY>"<NL>A57,532,1,3,1,1,N,"<TD>"<NL>A309,39,1,5,2,1,N,"<TV>"<NL>B 195,32,1,3,2,4,101,N,"<TV>"<NL> A61,32,1,5,1,1,N,"BOX COUNT: <TC>"<NL>P1<NL>	Normal mode, no tare in system
TOTAL	N<NL>A410,32,1,5,2,1,N,"<TOTAL QUANTITY>"<NL>A57,532,1,3,1,1,N,"<TD>"<NL>A309,39,1,5,2,1,N,"<TV>"<NL>B 195,32,1,3,2,4,101,N,"<TV>"<NL> A61,32,1,5,1,1,N,"BOX COUNT: <TC>"<NL>P1<NL>	Totalization mode
ACCFMT	ACCUM<A><NL><DA> <TI><NL>	Accumulator enabled and displayed

Table 7-2. Default Print Formats

Note *The 500-character limit of each print format string includes the output field length of the print formatting commands, not the command length. For example, if the indicator is configured to show a decimal point, the <G> command generates an output field of 13 characters: the 10-character weight value (including decimal point), one space, and a two-digit units identifier.*

The default *Counterpart* print formats are shown in Table 7-2 and Table 7-3:

Format	Default Format String	Sample Output
H1	Company Name <NL> Street Address <NL> City, ST ZIP <NL2>	Company Name, Street Address, City, ST ZIP
H2	Company Name <NL> Street Address <NL> City, ST ZIP <NL2>	Company Name, Street Address, City, ST ZIP

Table 7-3. H1, H2 Formats

7.2 Customizing Print Formats

The following sections describe procedures for customizing the GFMT, NFMT and CFMT formats using the EDP port, the front panel (PFORMT menu), and the *Revolution*® configuration utility.

7.2.1 Using the EDP Port

With a personal computer, terminal, you can use the EDP command set to customize the print format strings.

To view the current setting of a format string, type the name of the string (GFMT.FMT or NFMT) and press **TARE (Enter)**. For example, to check the current configuration of the GFMT format, type GFMT and press **ENTER**. The indicator responds by sending the current configuration for the gross format:

GFMT=<G> GROSS<NL>

To change the format, use the GFMT.FMT or NFMT EDP command followed by an equals sign (=) and the modified print format string. For example, to add the name and address of a company to the gross format, you could send the following EDP command:

Indicator must be placed in the config mode with** CONFIG **shown on the display.

GFMT.FMT=FINE TRANSFER CO<NL>32400 WEST HIGHWAY ROAD<NL>SMALLTOWN<NL2><G> GROSS<NL>

A ticket printed using this format might look like the following:

FINE TRANSFER CO
32400 WEST HIGHWAY ROAD
SMALLTOWN

1345 lb GROSS

7.2.2 Using the Front Panel

If you have no access to equipment for communication through the EDP port or are working at a site where such equipment cannot be used, you can use the PFORMT menu (see Figure 7-1) to customize the print formats.

Using the PFORMT menu, you can edit the print format strings by changing the decimal values of the ASCII characters in the format string.

Lower-case letters and some special characters cannot be displayed on the** Counterpart **front panel and are shown as blanks. The** Counterpart **can send or receive any ASCII character; the character printed depends on the particular ASCII character set implemented for the receiving device.

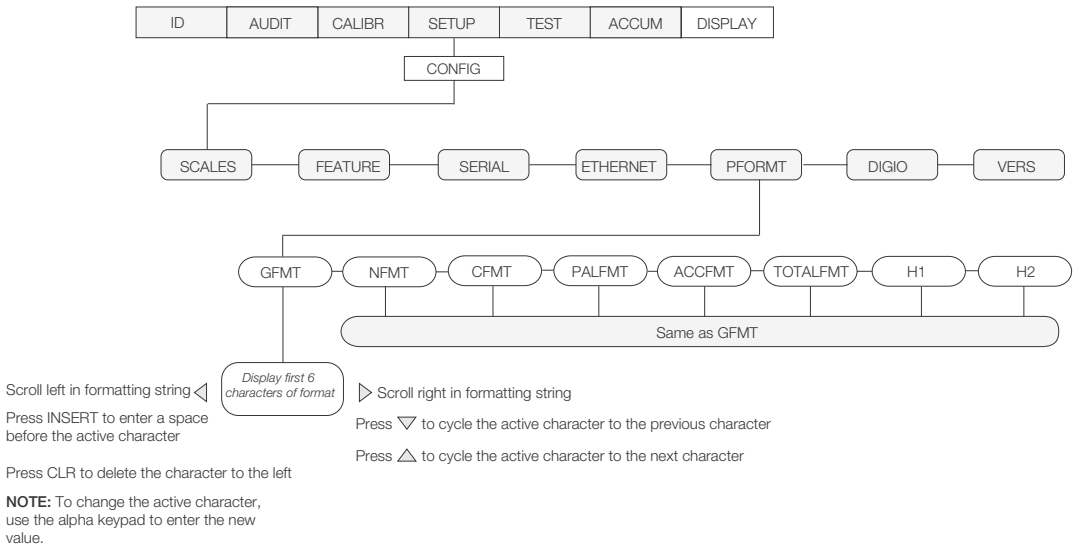

Figure 7-1. PFORMT Menu, Showing Alphanumeric Character Entry Procedure

7.2.3 Using *Revolution*®

The *Revolution* configuration utility provides a print formatting grid with a tool bar. The grid allows you to construct the print format without the formatting commands (<NL> and <SP>) required by the front panel or EDP command methods. Using *Revolution*, you can type text directly into the grid, then select weight value fields from the tool bar and place them where you want them to appear on the printed ticket.

Figure 7-2 shows an example of the *Revolution* print formatting grid.

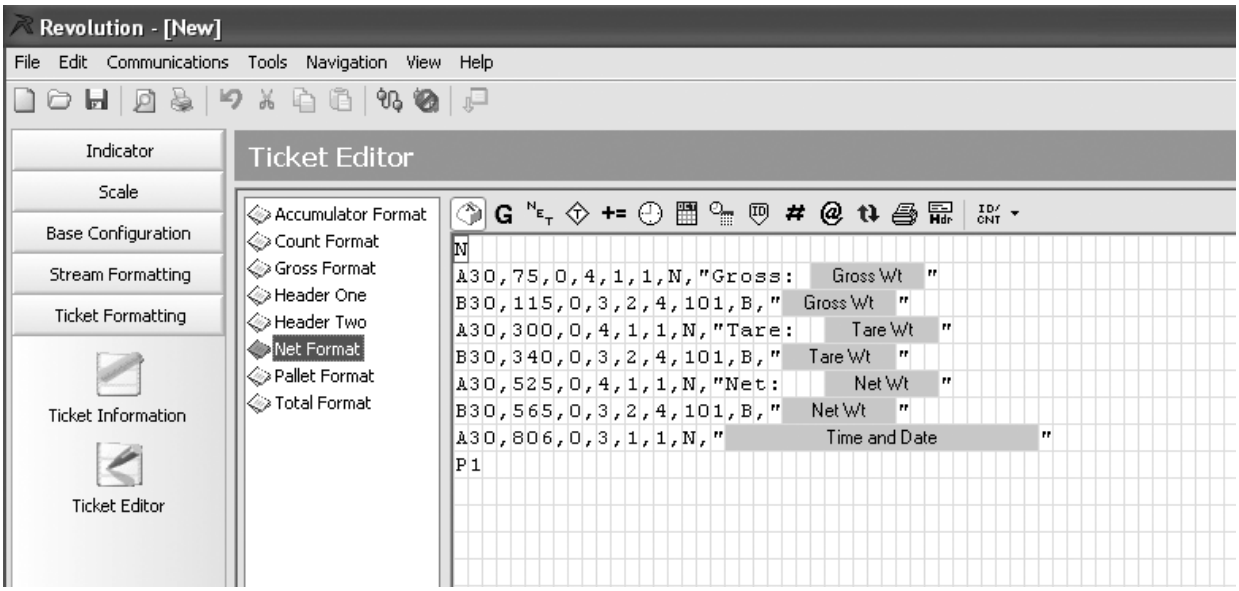

Figure 7-2. Revolution Print Format Grid

7.2.4 Print Label Examples

Listed below are print formatting examples that appear with the various formats.

Count Format

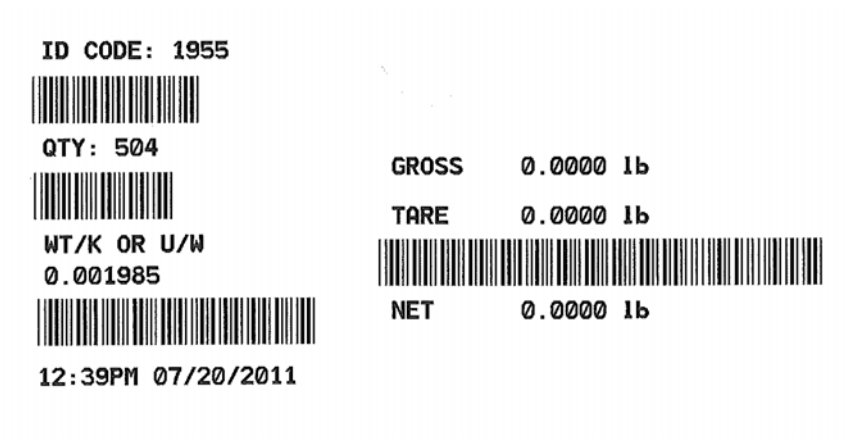

Figure 7-3. Count Format Label Example

Pallet Label Format

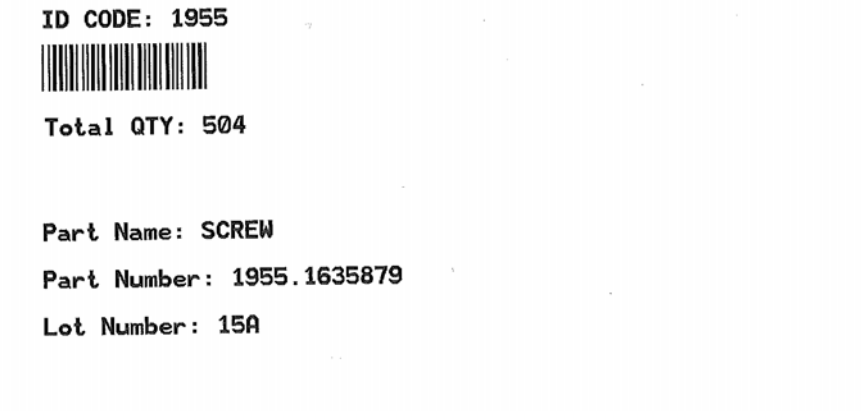

Figure 7-4. Pallet Format Label Example

Gross Label Format

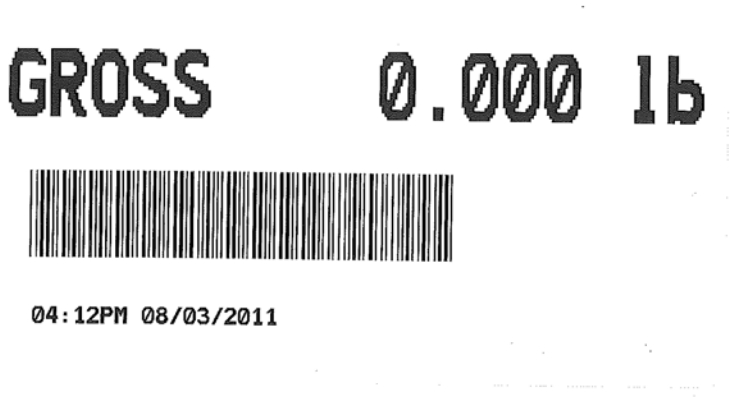

Figure 7-5. Gross Label Format

Total Label Format

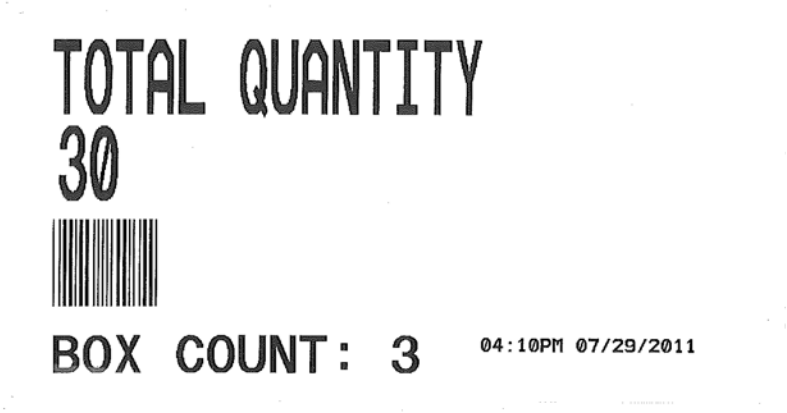

Figure 7-6. Total Format Label Example

Gross/Tare/Net Label Format

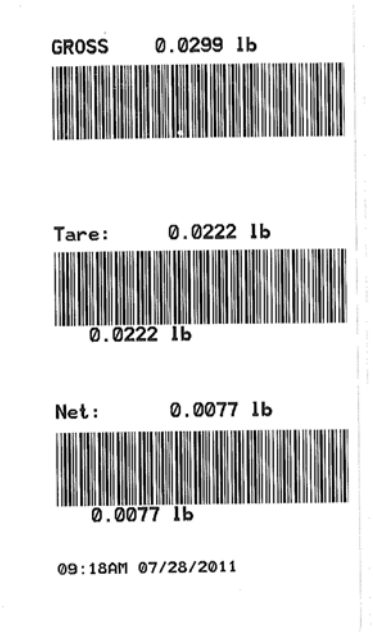

Figure 7-7. Gross/Tare/Net Label Format

8.0 WLAN Installation Instructions

Note *Before installing this option, you must contact your IT administrator to obtain network communication protocol codes and have a RS-232 communications cable or regular comm port cable available to run between your PC and the indicator while installing and setting up the wireless network.*

The optional Lantronix® WiPort™ (WLAN - Wireless Local Area Network) wireless networking device can be installed inside the *Counterpart* for real-time data transmission to warehouse management systems. The Windows®-based configuration software, DeviceInstaller™ is required for installation and setup and is available on the CD that comes with the kit. The WLAN option can be factory installed or can be purchased separately and installed on site.

The wireless LAN option comes in a kit containing the following items:

- Pluggable wireless board (PN 125787)
- Antenna (PN 98357)
- Standoffs (PN 95356)
- CD containing Lantronix information (PN 72763)

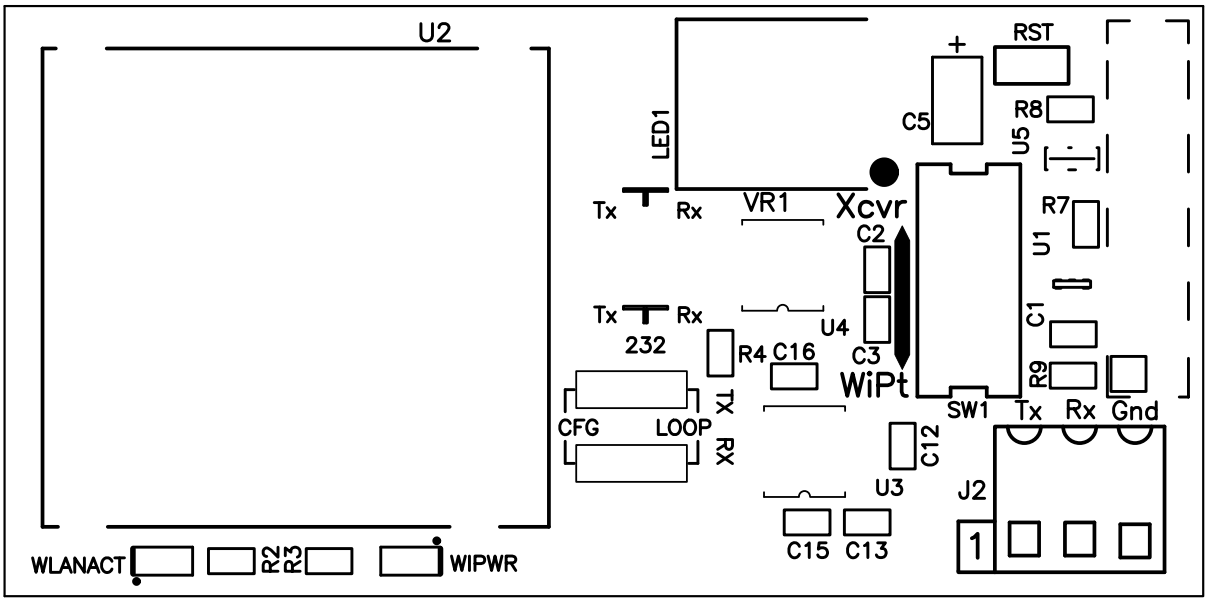

Figure 8-1. WLAN Board

8.1 Enclosure Disassembly

The indicator enclosure must be opened to install the WLAN option card and antenna and to connect cables for the installed option card.

Warning *Before opening the unit, ensure the power cord is disconnected from the power outlet.*

1. Disconnect power to the indicator.
2. Place the indicator face-down on an antistatic work mat.
3. Remove the screws that hold the backplate to the enclosure body, then lift the backplate away from the enclosure and set it aside.

8.2 WLAN Card Installation

1. Refer to *CW-90/90X, 720i, 820i, iQUBE2, LaserLT WLAN Installation Instructions* PN 108680 included with the WLAN option card for installation and configuration instructions.

9.0 Appendix

9.1 Error Messages

If an error code appears on the display, use the information in Table 9-1 as a troubleshooting guide. If you cannot clear the error, call RLWS Service for assistance.

Error Display	Description	Solution
	Over range	• Check load cell wiring, including sense jumpers. • Check configuration, including number of grads, channel selection, display divisions. • Check calibration, including W ZERO and W SPAN values. • Under range can be caused by OIML setting and weight less than -20 display divisions • Check for scale binding or damage. • Check for proper excitation voltage. • Call RLWS Service for assistance.
	Under range	
	A/D out of range	
CHKERR - BATTERY BACK LOST	Battery Error	Press ENTER after replacing the battery to restore defaults to battery backed storage.
ERROR	Internal program error	Check configuration. Run XE command (see Section 9.2 on page 66) to determine error type. Call RLWS Service if unable to clear error by cycling power or if error reoccurs.
HWFERR	Hardware error	Reboot the unit. Call RLWS Service if unable to clear error by cycling power or if error reoccurs.
INVALID UNITS	ID uses unassigned units	Modify the ID to use a configured unit.
NOTARE	Tare is prevented	Change regulatory mode settings or the TAREFN parameter.
OVERFL	Overflow error	Weight value too large to be displayed.
RANGE	GRADS > 100,000 WVAL > 100,000	Only shows up in Config mode.
EEPERR	EEPROM error	Call Rice Lake Weighing Systems (RLWS) for service
VERSION UPDATED	Core has been updated or memory has been corrupted.	Press the ENTER key. If the message persists, call RLWS for service.

Table 9-1. Counterpart Error Messages

9.2 Using the XE EDP Command

The XE EDP command can be used to remotely query the *Counterpart* for the error conditions shown on the front panel. The XE command returns a 5-digit number in the format:

xxxxx yyyyy

where *xxxxx* contains a decimal representation of any existing error conditions as described in Table 9-2.

If more than one error condition exists, the number returned is the sum of the values representing the error conditions. For example, if the XE command returns the number 1040, this value represents the sum of an A/D reference error (1024) and an A/D calibration checksum error (16).

XE Error Code	Description	XEH Hex Value
1	VIRGERR	0x00000001
2	PARMCHKERR	0x00000002
4	LOADCHKERR	0x00000004
8	PRINTCHKERR	0x00000008
16	ENVRAMERR	0x00000010
32	ENVCRCERR	0x00000020
64	BATTERYERR	0x00000040
32768	GRAVERR	0x00008000
65536	ADPHYSICALERR	0x00010000
131072	TAREERR	0x00020000
262144	EACCOVER	0x00040000
524288	STRINGERR	0x00080000
1048576	RESERVED_PF	0x00100000
2097152	RTCERR	0x00200000
4194304	MISSINGHWERR	0x00400000
8388608	CFGCONFLICTERR	0x00800000
16777216	UNRECOVERABLEERR	0x01000000
0x10000 - 0x80000000		Reserved

Table 9-2. Error Codes Returned on XE Command

9.2.1 Using the P EDP Command

The P EDP command returns the current displayed weight value to the EDP port.

9.3 Continuous Output (Stream) Format

Figure 9-1 shows the continuous output format sent to a *Counterpart* port when that port's TRIGGE parameter (SERIAL menu) is set to STREAM.

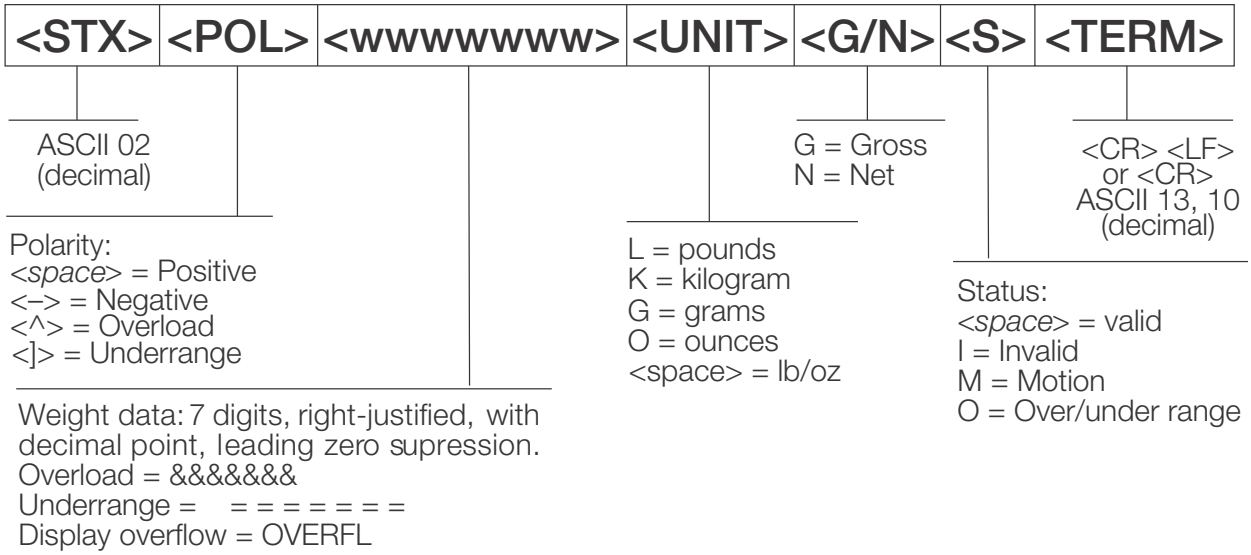

Figure 9-1. Continuous Output Data Format

9.4 Demand Output Serial Data Format

When demand mode is configured for the serial port (STREAM parameter set to OFF), the *Counterpart* uses a data string formatted for a basic ticket printout. The particular ticket format printed depends on the indicator configuration.

You can customize the ticket to work with a wide variety of printers, scoreboard displays, and other remote equipment. See Section 6.0 on page 52 for more information on custom print formats.

9.5 Custom Stream Formatting

Each port can be independently configured to stream a default frame format or can be customized to stream a user-defined format. Custom formatting is very similar to the standard print formatting described in Section 7.0 on page 52. Custom stream formatting can be set up through the Regula/Indust submenu. Table 9-3 lists the format identifiers used to configure a custom stream format.

Format Identifier	Defined By	Description
<P[G | N | T]>	STR.POS STR.NEG	Polarity. Specifies positive or negative polarity for the current or specified (Gross/Net/Tare) weight on the source scale. Possible values are SPACE, NONE, + (for STR.POS), or – (for STR.NEG)
<CU>	STR.PRI STR.SEC STR.TER	Units. Specifies primary, secondary, or tertiary units for the current or specified weight on the source scale.
<U[P | S | T]>	Dynamic	=L if Units=LB =K if Units=KG =G if Units=G =O if Units=OZ =space if Units=LB/OZ

Table 9-3. Custom Stream Formatting

Format Identifier	Defined By	Description
<M[G | N | T]>	STR.GROSS STR.NET STR.TARE	Mode. Specifies gross, net, or tare weight for the current or specified weight on the source scale.
<S>	STR.MOTION STR.RANGE STR.OK STR.INVALID	Status for the source scale. Default values and meanings for each status: STR.MOTIONMIn motion STR.RANGEOOut of range STR.OK<*space*>OK STR.INVALIDIInvalid
<CW>	—	Status of over/under/accept. O=Over, U=Under, A=Accept.
<B [–]n,…>	*See descriptions below*	Bit fields. Comma-separated sequence of bit field specifiers. Must be exactly 8 bits. Minus sign ([–]) inverts the bit.
B0	—	Always 0
B1	—	Always 1
B2	Configuration	=1 if even parity
B3	Dynamic	=1 if MODE=NET
B4	Dynamic	=1 if COZ
B5	Dynamic	=1 if standstill
B6	Dynamic	=1 if gross negative
B7	Dynamic	=1 if out of range
B8	Dynamic	=1 if secondary/tertiary
B9	Dynamic	=1 if tare in system
B10	Dynamic	=1 if tare is keyed
B11	Dynamic	=00 if MODE=GROSS =01 if MODE=NET =10 if MODE=TARE =11 (*not used*)
B12	Dynamic	=00 if UNITS=PRIMARY =01 if UNITS=SECONDARY =10 if UNITS=TERTIARY =11 (*not used*)
B13	Configuration	=00 (*not used*) =01 if current DSPDIV=1 =10 if current DSPDIV=2 =11 if current DSPDIV=5
B14	Configuration	=00 (*not used*) =01 if primary DSPDIV=1 =10 if primary DSPDIV=2 =11 if primary DSPDIV=5
B15	Configuration	=00 (*not used*) =01 if secondary DSPDIV=1 =10 if secondary DSPDIV=2 =11 if secondary DSPDIV=5
B16	Configuration	=00 (*not used*) =01 if tertiary DSPDIV=1 =10 if tertiary DSPDIV=2 =11 if tertiary DSPDIV=5

Table 9-3. Custom Stream Formatting

Format Identifier	Defined By	Description
B17	Configuration	=000 if current DECPNT=8888800 =001 if current DECPNT=8888880 =010 if current DECPNT=8888888 =011 if current DECPNT=888888.8 =100 if current DECPNT=88888.88 =101 if current DECPNT=8888.888 =110 if current DECPNT=888.8888 =111 if current DECPNT=88.88888
B18	Configuration	=000 if primary DECPNT=8888800 =001 if primary DECPNT=8888880 =010 if primary DECPNT=8888888 =011 if primary DECPNT=888888.8 =100 if primary DECPNT=88888.88 =101 if primary DECPNT=8888.888 =110 if primary DECPNT=888.8888 =111 if primary DECPNT=88.88888
B19	Configuration	=000 if secondary DECPNT=8888800 =001 if secondary DECPNT=8888880 =010 if secondary DECPNT=8888888 =011 if secondary DECPNT=888888.8 =100 if secondary DECPNT=88888.88 =101 if secondary DECPNT=8888.888 =110 if secondary DECPNT=888.8888 =111 if secondary DECPNT=88.88888
B20	Configuration	=000 if tertiary DECPNT=8888800 =001 if tertiary DECPNT=8888880 =010 if tertiary DECPNT=8888888 =011 if tertiary DECPNT=888888.8 =100 if tertiary DECPNT=88888.88 =101 if tertiary DECPNT=8888.888 =110 if tertiary DECPNT=888.8888 =111 if tertiary DECPNT=88.88888
<*wspec* [–] [0] *digit*[[.]*digit*]>	Scale weight	Weight for the source scale. *wspec* is defined as follows: *wspec* Indicates whether the weight is the current displayed weight (W, w), gross (G, g), net (N, n), or tare (T, t) weight. Upper-case letters specify right-justified weights; lower-case are left-justified. Optional /P, /S, or /T suffixes can be added before the ending delimiter (>) to specify weight display in primary (/P), secondary (/S), or tertiary (/T) units. [–] Enter a minus sign (–) to include sign for negative values. [0] Enter a zero (0) to display leading zeroes. *digit*[[.][.]*digit*] The first digit indicates the field width in characters. Decimal point only indicates floating decimal; decimal point with following digit indicates fixed decimal with *n* digits to the right of the decimal. Two consecutive decimals send the decimal point even if it falls at the end of the transmitted weight field.
<CR>	—	Carriage return
<LF>	—	Line feed

Table 9-3. Custom Stream Formatting

9.6 Digital Filtering

The *Counterpart* uses averaged digital filtering to reduce the effect of vibration on weight readings. Adjustable threshold and sensitivity functions allow quick settling by suspending filter averaging, allowing the weight reading to jump to the new value. Figure 9-2 shows the digital filter parameters on the CONFIG menu.

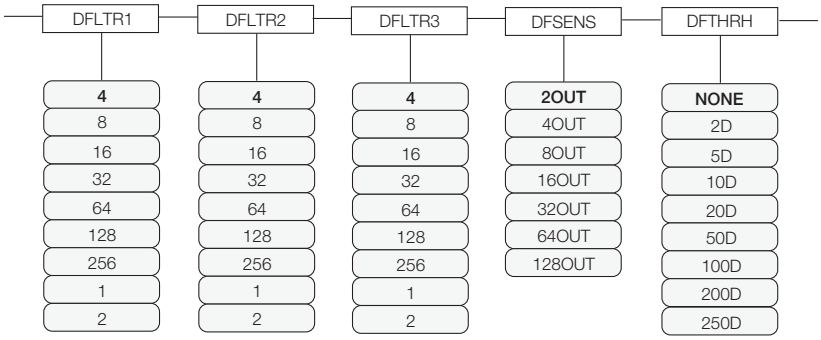

Figure 9-2. Digital Filtering Parameters on the Configuration (CONFIG) Menu

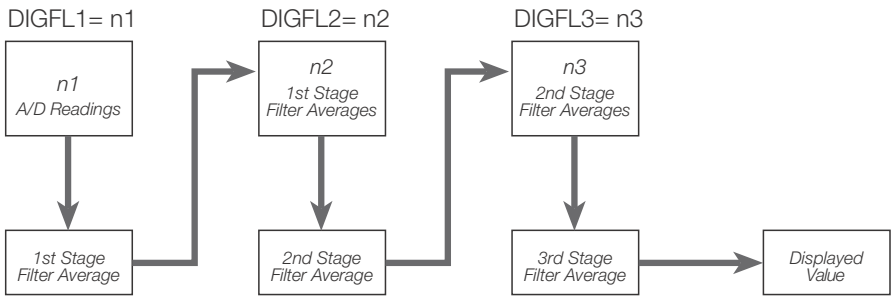

Figure 9-3. Flow Diagram for Counterpart Digital Filters

9.6.1 DIGFLx Parameters

The first three digital filtering parameters, DFLTR1, DFLTRL2, and DFLTR3, are configurable filter stages that control the effect of a single A/D reading on the displayed weight. The value assigned to each parameter sets the number of readings received from the preceding filter stage before averaging (see Figure 9-3).

The overall filtering effect can be expressed by adding the values assigned to the three filter stages:

DFLTR1 + DFLTR2 + DFLTR3

For example, if the filters are configured as DFLTR1=4, DFLTR2=8, DFLTR3=8, the overall filtering effect is 20 (4 + 8 + 8). With this configuration, each A/D reading has a 1-in-20 effect on the displayed weight value. Setting the filters to 1 effectively disables digital filtering.

9.6.2 DFSENS and DFTHRH Parameters

The three digital filters can be used by themselves to eliminate vibration effects, but heavy filtering also increases settling time. The DFSENS (digital filter sensitivity) and DFTHRH (digital filter threshold) parameters can be used to temporarily override filter averaging and improve settling time:

- DFSENS specifies the number of consecutive scale readings that must fall outside the filter threshold (DFTHRH) before digital filtering is suspended.
- DFTHRH sets a threshold value, in display divisions. When a specified number of consecutive scale readings (DFSENS) fall outside of this threshold, digital filtering is suspended. Set DFTHRH to NONE to turn off the filter override.

9.6.3 Setting the Digital Filter Parameters

Fine-tuning the digital filter parameters greatly improves indicator performance in heavy-vibration environments. Use the following procedure to determine vibration effects on the scale and optimize the digital filtering configuration.

1. In menu mode, set all three digital filters (DFLTR1, DFLTRL2, DFLTR3) to 1. Set DFTHRH to NONE. Return indicator to normal mode.
2. Remove all weight from the scale, then watch the indicator display to determine the magnitude of vibration effects on the scale. Record the weight below which all but a few readings fall. This value is used to calculate the DFTHRH parameter value in Step 4.

   For example, if a heavy-capacity scale produces vibration-related readings of up to 50 lb, with occasional spikes to 75 lb, record 50 lb as the threshold weight value.
3. Place the indicator in menu mode and set the digital filters (DFLTR*x*) to eliminate the vibration effects on the scale. (Leave DFTHRH set to NONE.) Reconfigure as necessary to find the lowest effective values for the DFLTR*x* parameters.
4. With optimum values assigned to the DFLTR*x* parameters, calculate the DFTHRH parameter value by converting the weight value recorded in Step 2 to display divisions:

   threshold_weight_value / DSPDIV

   In the example in Step 2, with a threshold weight value of 50 lb and a display division value of 5lb: *50 / 5lb = 10DD*. DFTHRH should be set to 10DD for this example.
5. Finally, set the DFSENS parameter high enough to ignore transient peaks. Longer transients (typically caused by lower vibration frequencies) will cause more consecutive out-of-band readings, so DFSENS should be set higher to counter low frequency transients.

   Reconfigure as necessary to find the lowest effective value for the DFSENS parameter.

9.6.4 Audit Trail Support

Audit trail support provides tracking information for configuration and calibration events. To prevent potential misuse, all configuration and calibration changes are counted as change events.

Use the Audit menu or Revolution to display audit trail information. This includes the legally relevant (LR) version number (software version for the code that provides audit trail information), a calibration count and a configuration count.

Audit trail information can be printed from Revolution or by sending the DUMPAUDIT serial command.

9.7 Serial Scale Interface

Serial port 1 can be configured for serial scale input. The serial scale function allows other scale indicators to send gross, or net weight data to *Counterpart*. Once the serial port has been configured to accept scale data, the data format can be customized to match the data stream sent by that indicator. See Figure 3-9 on page 28 for information setting up

To set up and configure a serial scale, do the following:

1. Under the SERIAL menu, select Port 1 and scroll over to INDUST Scale (industrial serial scale) or LFT (Legal-for-Trade), depending on what is required.
2. Match up the baud rates (9600) and this becomes SCALE 3.
3. Under the SERIAL menu, return to the selected port and set the format under the SFMT parameter to match the format sent by the serial scale.

   The default serial scale format is:

<STX><P><W7><U><M><S><CR>

Where:

<STX>	STX character
<P>	Polarity
<W7>	Seven characters of net data with decimal pt
<U>	Units
<M>	Mode
<S>	Status
<CR>	Carriage return

Note that industrial serial scales (INDUST) do not require the <M>, <U> and <S> identifiers. However, the units and number of decimal places must be specified. Units can be selected from the FORMAT menu; decimal places should be indicated with a w-spec identifier. For example, a seven-digit weight reading requiring two decimal places should be specified as <W7.2> rather than <W7>.

To change or match formats, use the same path to change formats.

9.8 Regulatory Mode Functions

The function of the front panel **TARE** and **ZERO** keys depends on the value specified for the REGULAT parameter on the FEATURE menu. Table 9-4 describes the function of these keys for the NTEP, CANADA, OIML, and NONE regulatory modes. **TARE** and **ZERO** key functions are configurable when the REGULAT mode is set to INDUST (see Table 9-5 on page 74).

REGULAT Parameter Value	Weight on Scale	Tare in System	Front Panel Key Function	
			TARE	ZERO
NTEP	zero or negative	no	*no action*	ZERO
		yes	CLEAR TARE	
	positive	no	TARE	
		yes	TARE	
CANADA	zero or negative	no	*no action*	ZERO
		yes	CLEAR TARE	
	positive	no	TARE	
		yes	*no action*	
OIML	zero or negative (not to exceed -20dd)	no	*no action*	ZERO
		yes	CLEAR TARE	ZERO *and* CLEAR TARE
	positive	no	TARE	ZERO
		yes	TARE	ZERO *and* CLEAR TARE if weight is within ZRANGE. *No action* if weight is outside of ZRANGE
NONE	zero or negative	no	TARE	ZERO
		yes	CLEAR TARE	
	positive	no	TARE	
		yes	CLEAR TARE	

Table 9-4. TARE and ZERO Key Functions for REGULAT Parameter Settings

Table 9-5 lists the subparameters available when configuring a scale using INDUST mode. The table includes the default values of the INDUST subparameters and the effective (not configurable) values used by the NTEP, CANADA, OIML, and NONE regulatory modes.

REGULAT / INDUST Parameter		REGULAT Mode				
Parameter Name	Text Prompt	INDUST	NTEP	CANADA	OIML	NONE
SNPSHOT	Display or Scale weight source	DISPLAY	DISPLAY	DISPLAY	DISPLAY	SCALE
ZTARE	Remove tare on ZERO	NO	NO	NO	YES	NO
KTARE	Always allow keyed tare	YES	YES	NO	YES	YES
MTARE	Multiple tare action	REPLACE	REPLACE	NOTHING	REPLACE	REMOVE
NTARE	Allow negative tare	NO	NO	NO	NO	YES
CTARE	Allow CLEAR key to clear tare/ accumulator	YES	YES	NO	NO	YES
PRTMOT	Allow print while in motion	NO	NO	NO	NO	YES
PRTPT	Add PT to keyed tare print	NO	NO	YES	YES	NO
OVRBASE	Zero base for overload calculation	CALIB ZERO	CALIB ZERO	CALIB ZERO	SCALE ZERO	CALIB ZERO

Table 9-5. REGULAT / INDUST Mode Parameters, Comparison with Effective Values of Other Modes

9.9 Updating Firmware

To update firmware of the *Counterpart*, you must have Revolution installed and a .hex file on your computer. Visit **www.ricelake.com** to download this free configuration software and the latest .hex file.

Note ***If the hex file is the same version as is currently in the indicator, the firmware update will not reset the configuration. This is helpful if the firmware becomes corrupt and you want to reload the same firmware. However, it is always recommended that configuration be backed up in Revolution to avoid any data loss.***

1. Unplug power to the *Counterpart* and remove top from the base of the unit.
2. Wire the serial cable to the *Counterpart*'s Port 1. Refer to Table 9-6 for cable connection settings.

DB9 Cable				Connector (J2)		
Pin/Color	*Signal*	*In/Out*	*Description*	*Pin*	*Description*	*In/Out*
1/Brown	DCD	In	Data Carrier Detect	NC	NA	NA
2/Red	RxD	In	Receive Data	3	Tx	Out
3/Orange	TxD	Out	Transmit Data	4	Rx	In
4/Yellow	DTR	Out	Data Terminal Ready	5	DTR	In
5/Green	GND	--------	Ground	1 or 2	Gnd	--------
6/Blue	DSR	In	Data Set Ready	NC	NA	NA
7/Purple	RTS	Out	Request to Send	6	RTS	In
8/Gray	CTS	In	Clear to Send	NC	NA	NA
9/Black	RI	In	Ring Indicator	NC	NA	NA

Table 9-6. Cable connection settings

3. Install jumpers on JP5 and JP6. See Figure 2-3 on page 8.
4. Plug in power to the *Counterpart* and press the indicator's Power button.
5. With Revolution open, begin a new configuration file for the *Counterpart*.
6. Click Update *Counterpart* Firmware.

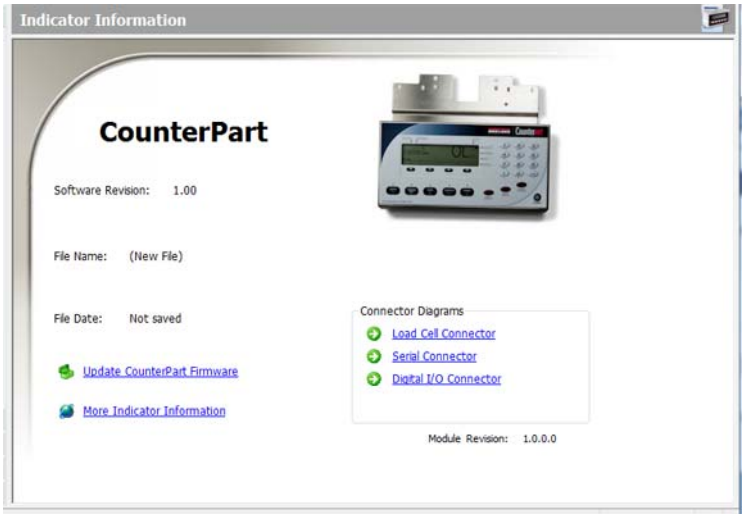

Figure 9-4. Revolution Screen.

7. The *Rice Lake Updater* screen appears. Specify the COM port the *Counterpart* is connected to, and click the ellipses (...) to browse to and select the desired .hex file.

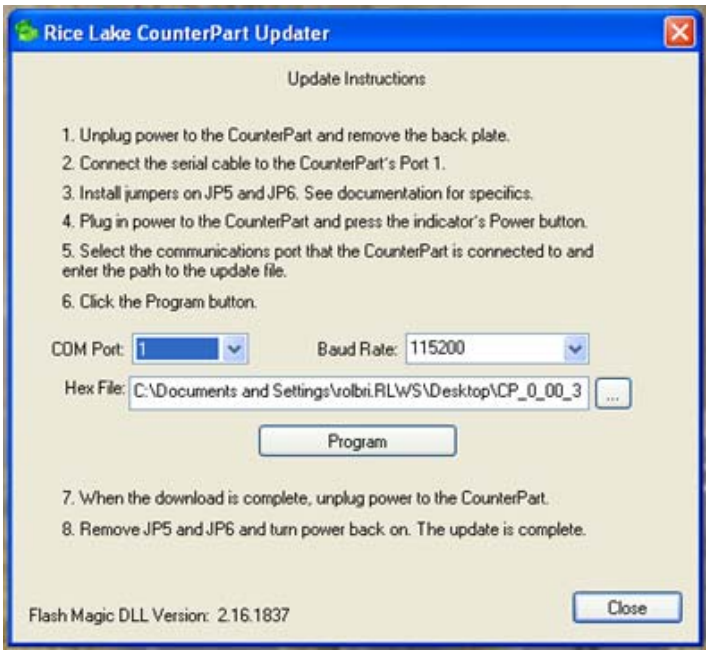
Rice Lake CounterPart Updater
Update Instructions
1. Unplug power to the CounterPart and remove the back plate.
2. Connect the serial cable to the CounterPart's Port 1.
3. Install jumpers on JP5 and JP6. See documentation for specifics.
4. Plug in power to the CounterPart and press the indicator's Power button.
5. Select the communications port that the CounterPart is connected to and enter the path to the update file.
6. Click the Program button.
COM Port: 1
Baud Rate: 115200
Hex File: C:\Documents and Settings\volbri.RLWS\Desktop\CP_0_00_3
...
Program
7. When the download is complete, unplug power to the CounterPart.
8. Remove JP5 and JP6 and turn power back on. The update is complete.
Flash Magic DLL Version: 2.16.1837
Close

Figure 9-5. Rice Lake Updater Screen

8. Click the Program button. The update will take several moments.
9. When complete, remove the jumpers shown in Figure 4 on page 75 and press the Power button to power up the indicator.

9.10 Specifications

Part #	Description	Weighing Resolution	Platter Dimensions
Single Channel			
118788	CP Indicator	Console only	
120736	CP-5	5 lb x 0.0005 lb (2 kg x 0.0002 kg)	9 in x 12 in
120737	CP-10	10 lb x 0.001 lb (5 kg x 0.0005 kg)	11 in x 16 in
120738	CP-25	25 lb x 0.002 lb (10 kg x 0.001 kg)	11 in x 16 in
120739	CP-50	50 lb x 0.005 lb (20 kg x 0.002 kg)	11 in x 16 in
120740	CP-100	100 lb x 0.01 lb (50 kg x 0.005 kg)	11 in x 16 in
Dual Channel (single platform XL base systems)			
120770	CP dual indicator	Console only	
119796	CP-5	5 lb x 0.0005 lb (2 kg x 0.0002 kg)	9 in x 12 in
118797	CP-10	10 lb x 0.001 lb (5 kg x 0.0005 kg)	11 in x 16 in
118798	CP-25	25 lb x 0.002 lb (10 kg x 0.001 kg)	11 in x 16 in
118799	CP-50	50 lb x 0.005 lb (20 kg x 0.002 kg)	11 in x 16 in
118800	CP-100	100 lb x 0.01 lb (50 kg x 0.005 kg)	11 in x 16 in
Dual Channel with Benchmark			
125113	CP-50BM	50 lb x 0.01 lb (20 kg x 0.002 kg)	12 in x 18 in
125116	CP-100BM	100 lb x 0.02 lb (50 kg x 0.005 kg)	12 in x 18 in

Table 9-7. Specifications

9.11 Specifications

POWER:

Power source:

Input: 100-240VAC, 47-63 Hz, 5 watts, US power cord

Output: 9VDC or 12VDC 1.25 max

EXCITATION VOLTAGE:

5VDC

ANALOG SIGNAL INPUT RANGE:

0-4.5 mV/V

ANALOG SPECIFICATIONS:

.3 μV/V grad minimum

ANALOG SPECIFICATIONS:

Input sensitivity: 1.5 μV/V grad recommended
Zero adjustment range: 0-100% or per region settings
A/D conversion rate: 7.5, 15, 30 samples per second
Load cells per scale: 8 x 350Ω; 16 x 700Ω
Scale channels: 1 or 2
Linearity +/- 0.017 full scale

CIRCUIT PROTECTION:

RFI, EMI, ESD protection

DIGITAL I/O:

4 I/O

DISPLAY:

Viewing Area: 240 x 64 pixels, transmissive VGA
Liquid Crystal Display (LCD) with adjustable contrast

KEYBOARD:

24 buttons, full keypad - alpha numeric

RESOLUTION:

Weight display resolution: up to 100,000 graduations
Counting resolution: 1/1,000,000

SERIAL COMMUNICATIONS AND SETPOINT:

Two RS-232 ports supports up to 115,200 bps
One optional port 3 connector for USB, Ethernet Fiber Optics, etc.
Ethernet port
Setpoint output (pending) - serial scale on Port 1 only.

STATUS ENUNCIATORS:

PCS, motion, low battery, insuff, recomp, scale number, gross, net, zero

BATTERY:

Type: Lithium Ion
Charge Time: 6-8 hours
Charge Cycles 400-1200
Estimated Run Time: up to 24 hours

OPERATING TEMPERATURE:

10^{O} F to 104^{O} F (0^{O} C - 40^{O} C)

OPERATING HUMIDITY:

85%

PHYSICAL DIMENSIONS:

Indicator Only: 12.25 in x 6.25 in x 4.0 in

APPROVALS:

Pending

WARRANTY:

Two-year limited warranty

CERTIFICATIONS AND APPROVALS

Counterpart **Indicator**
NTEP
(Pending)

(Pending)

(Pending)

Counterpart Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for two years.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, *Protecting Your Components From Static Damage in Shipment*, available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RLWS AND BUYER AGREE THAT RLWS' SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

NO TERMS, CONDITIONS, UNDERSTANDING, OR AGREEMENTS PURPORTING TO MODIFY THE TERMS OF THIS WARRANTY SHALL HAVE ANY LEGAL EFFECT UNLESS MADE IN WRITING AND SIGNED BY A CORPORATE OFFICER OF RLWS AND THE BUYER.

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For More Information

Literature

- *Counterpart Sales Literature*, PN 125545
- *Counterpart CD with WeighVault*, PN 125546
- *Weighvault manual for Counterpart*, PN 125561

Web Site

- Frequently Asked Questions (FAQs) at http://www.ricelake.com/faqs.aspx

Contact Information

Hours of Operation

Knowledgeable customer service representatives are available 6:30 a.m. - 6:30 p.m. Monday through Friday and 8 a.m. to 12 noon on Saturday. (CST)

Telephone

- Sales/Technical Support 800-472-6703
- Canadian and Mexican Customers 800-321-6703
- International 715-234-9171

Immediate/Emergency Service

For immediate assistance call toll-free 1-800-472-6703 (Canadian and Mexican customers please call 1-800-321-6703). If you are calling after standard business hours and have an urgent scale outage or emergency, press 1 to reach on-call personnel.

Fax

Fax Number 715-234-6967

Email

- US sales and product information at prodinfo@ricelake.com
- International (non-US) sales and product information at intlsales@ricelake.com

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